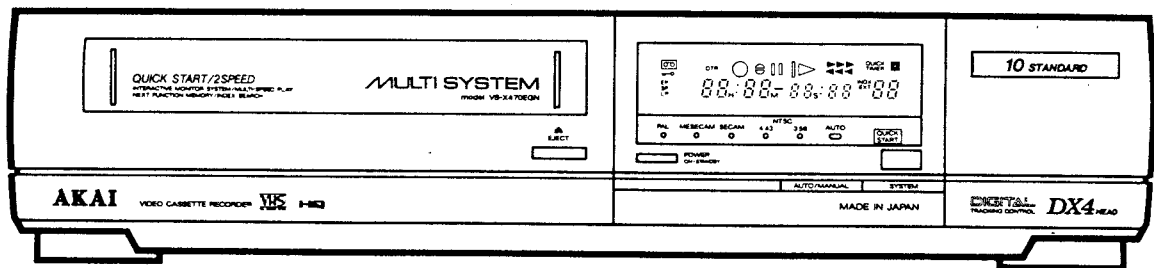


VS-X400EGN
VS-X450EGN
VS-X470EGN

AKAI SERVICE MANUAL



HQ **VHS**
HIGH QUALITY PAL SECAM NTSC

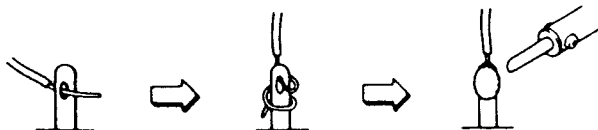
VIDEO CASSETTE RECORDER

MODEL **VS-X470**EGN

★ SAFETY INSTRUCTIONS

PRECAUTIONS DURING SERVICING

1. Parts identified by the ⚠ (*) symbol are critical for safety. Replace only with parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation.
These must also be replaced only with specified replacements.
Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
3. Use specified internal wiring. Note especially:
 - 1) Wires covered with PVC tubing
 - 2) Double insulated wires
 - 3) High voltage leads
4. Use specified insulating materials for hazardous live parts. Note especially:
 - 1) Insulation Tape
 - 2) PVC tubing
 - 3) Spacers (Insulating Barriers)
 - 4) Insulation sheets for transistors
 - 5) Plastic screws for fixing microswitch (especially in turntable)
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



6. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).

7. Check that replaced wires do not contact sharp edged or pointed parts.
8. Also check areas surrounding repaired locations.
9. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

SAFETY CHECK AFTER SERVICING

After servicing, make measurements of leakage-current or resistance in order to determine that exposed parts are acceptably insulated from the supply circuit.

The leakage-current measurement should be done between accessible metal parts (such as chassis, ground terminal, microphone jacks, signal-input/output connectors, etc.) and the earth ground through a resistor of 1500 ohms paralleled with a 0.15 μ F capacitor, under the unit's normal working conditions. The leakage-current should be less than 0.5 mA rms AC.

The resistance measurement should be done between accessible exposed metal parts and power cord plug prongs with the power switch (if included) "ON". The resistance should be more than 2.2 Mohms.

MAKE YOUR CONTRIBUTION TO PROTECT THE ENVIRONMENT

Used batteries with the ISO symbol for recycling as well as small accumulators (rechargeable batteries), mini-batteries (cells) and starter batteries should not be thrown into the garbage can.



Please leave them at an appropriate depot. All other household batteries can be thrown out with the household waste.

★ SPECIFICATIONS

Format	VHS standard
Video recording system	Rotary, slant azimuth two-head heli- cal scan system
Rotary heads	2 video heads
RF input	
(W.Europe ch)	System B/G VHF ch. 2 - 4, 5 - 12 (including Ireland A ch) UHF ch. 21 - 69 Cable ch. S1' - S3', S1 - S20
(OIRT ch)	System D/K VHF ch. 1 - 12 UHF ch. 21 - 69
(U.K. ch)	System I VHF ch. 21 - 69
(USA ch)	System M VHF ch. 2 - 6, 7 - 13 UHF ch. 14 - 83 Cable ch. A6 - A1, A - I, J - V
(Japan ch)	System M VHF ch. 1 - 3, 4 - 12 UHF ch. 13 - 62
RF output	System G, K, I, M type modulation
(PAL, MESECAM)	UHF: ch 30 to 39 adjustable (preset ch 36)
(NTSC)	UHF: ch 26 to 38 adjustable (preset ch 34)
Recording (line input)	PAL, SECAM (recorded as MESE- CAM), NTSC 3.58
Playback (line output)	PAL, SECAM (MESECAM tape) NTSC 3.58, NTSC 4.43
Video	
Line input level	0.5 to 2.0 Vp-p/75 ohms, unbalanced
Line output level	1.0 Vp-p/75 ohms, unbalanced
S/N ratio	More than 45 dB
Horizontal resolution	
(PAL)	More than 250 lines
(MESECAM)	More than 220 lines
(NTSC)	More than 220 lines
Audio	
Line input level	-6 dBs/50 kohms, unbalanced
Line output level	-6 dBs/1 kohms, unbalanced
S/N ratio	More than 40 dB
Frequency response	70 to 10,000 Hz
Recording/playback time	
(NTSC)	160 min. with T-160 cassette
(CCIR)	240 min. with E-240 cassette
Tape speed	
(NTSC)	33.35 mm/sec.
(CCIR)	23.39 mm/sec.
Quick finder	
(NTSC)	Approx. 5 or 9 times normal speed
(CCIR)	Approx. 5 or 15 times normal speed
FF, REW time	Approx. 5 min. with E-180 cassette
Timer	
Program	8 programs/1 year and QUICK TIMER
Clock reference	Quartz crystal
Display	TV screen & FL (Tape counter, Timer etc.)
Power requirements	110 to 127/200 to 240 V AC, 50/60 Hz
Power consumption	34 W
Operating temperature	5°C to 40°C
Dimensions	425 (W) × 92 (H) × 315 (D) mm
Weight	5.5 kg
Standard accessories	
Antenna cable	1
Remote control unit (RC-V10A)	1
Batteries for remote control	2
Operator's manual	1

0 dBs = 0.775 V

'X470 EGN

Format	VHS standard
Video recording system	Rotary, slant azimuth two-head heli- cal scan system
Rotary heads	DX4 video heads
RF input	
(W.Europe ch)	System B/G VHF ch. 2 - 4, 5 - 12 (including Ireland A ch) UHF ch. 21 - 69 Cable ch. S1' - S3', S1 - S20
(OIRT ch)	System D/K VHF ch. 1 - 12 UHF ch. 21 - 69
(U.K. ch)	System I VHF ch. 21 - 69
(France ch:X470 ONLY)	System L VHF ch. 1 - 6 UHF ch. 21 - 69 Cable ch. B - P
(USA ch)	System M VHF ch. 2 - 6, 7 - 13 UHF ch. 14 - 83 Cable ch. A6 - A1, A - I, J - V
(Japan ch)	System M VHF ch. 1 - 3, 4 - 12 UHF ch. 13 - 62
RF output	System G, K, I, M type modulation
(PAL, MESECAM)	UHF: ch 30 to 39 adjustable (preset ch 36)
(NTSC)	UHF: ch 26 to 38 adjustable (preset ch 34)
Recording (line input)	PAL, SECAM (recorded as MESE- CAM), NTSC 3.58, NTSC 4.43
Playback (line output)	PAL, SECAM (MESECAM tape), NTSC 3.58, NTSC 4.43
Video	
Line input level	0.5 to 2.0 Vp-p/75 ohms, unbalanced
Line output level	1.0 Vp-p/75 ohms, unbalanced
S/N ratio	More than 47 dB
Horizontal resolution	
(PAL)	More than 250 lines
(MESECAM)	More than 220 lines
(NTSC)	More than 220 lines
Audio	
Line input level	-6 dBs/50 kohms, unbalanced
Line output level	-6 dBs/1 kohms, unbalanced
S/N ratio	More than 40 dB
Frequency response	70 to 10,000 Hz
Recording/playback time	
(NTSC)	SP mode 160 min. with T-160 cassette EP mode 480 min. with T-160 cassette
(CCIR)	SP mode 240 min. with E-240 cassette LP mode 480 min. with E-240 cassette
Tape speed	
(NTSC)	SP mode 33.35 mm/sec. EP mode 11.12 mm/sec.
(CCIR)	SP mode 23.39 mm/sec. LP mode 11.695 mm/sec.
Quick finder	
(NTSC)	SP mode Approx. 5 or 9 times normal speed EP mode Approx. 5 or 15 times normal speed
(CCIR)	SP mode Approx. 5 or 15 times normal speed LP mode Approx. 3 or 7 times normal speed
FF, REW time	Approx. 5 min. with E-180 cassette
Timer	
Program	8 programs/1 year and QUICK TIMER
Clock reference	Quartz crystal
Display	TV screen & FL (Tape counter, Timer etc.)
Power requirements	110 to 127/200 to 240 V AC, 50/60 Hz
Power consumption	
(X450)	35 W
(X470)	36 W
Operating temperature	5°C to 40°C
Dimensions	425 (W) × 92 (H) × 315 (D) mm
Weight	
(X450)	5.5 kg
(X470)	5.8 kg
Standard accessories	
Antenna cable	1
Remote control unit (RC-V10A)	1
Batteries for remote control	2
Operator's manual	1

0 dBs = 0.775 V

* For improvement purposes, specifications and design are subject to change without notice.

★ INFORMATION

SYMBOLS OF MODEL NAME FOR PRIMARY DESTINATION

Symbol indicates the destination of the units as listed below.

Symbol	Power Classification	Principal Destination	TV System	
			Color	Broadcast
EA	S	Australia	PAL	B, G
ED	E	China	PAL	D
EDG	E	East Europe	PAL	D, K
EDI	E	China, Hong Kong	PAL	D, K, I
EG	E	Spain, Northern Europe, Other	PAL	B, G
	Y7	Saudi Arabia		
EK	B	U.K.	PAL	I
	Y1	Hong Kong		
EM	E	Middle East	PAL	B, G
	Y7	Saudi Arabia		
EO	E	Holland, Switzerland, Northern Europe	PAL	B, G
	V	Italy		
EOH	E	Holland, Belgium	PAL	B, G
	V	Italy		
EOG	V	W.Germany	PAL	B, G
ES	E	South Africa, Ireland, Hong Kong	PAL	I
EV	E	South-East Asia	PAL	B, G
	U	Middle East, South-East Asia		
	Y1	New Zealand		
	Y7	Saudi Arabia		
EZ	S	New Zealand	PAL	B, G
EGN	E	Middle East	PAL, NTSC	B, G
	Y7	Saudi Arabia		
S	E	France	SECAM	L
SK	E	Latin America, Oceania, SECAM-OIRT	SECAM	K, KI
SEG	E	France, Switzerland	SECAM, PAL	L, B, G
U	A	U.S.A	NTSC	M
	C	Canada		
UM	U	Latin America	NTSC	M
J	J	Japan	NTSC	M

Quick start function

This VCR contains the quick start function.

When a video tape is inserted into this VCR, the QUICK START indicator will automatically light on the front panel. This indicates that the VCR is in the quick start mode and that any function button pressed will operate immediately. If a function button is not pressed within 5 minutes, the indicator will disappear and the VCR will be released from the quick start mode. If the play or record button is pressed after the indicator has disappeared, there will be a short time before the VCR responds.

Automatic functions

This VCR contains the following auto functions.

1. Auto power on
The VCR power is automatically turned on when the tape is inserted.
2. Auto play
If the video tape's recording defeat tab has been removed, playback will begin automatically when the tape is inserted into the VCR.
3. Auto tape reject

If a video tape with its recording defeat tab removed is loaded, the VCR will automatically eject it when the REC or TIMER button is pressed.

4. Power off eject
Even when the VCR's power is off, pressing the EJECT button will turn the power on and eject the tape. Once ejected the power will be turned off automatically.
5. Auto counter display
When the display mode is on, the tape counter will be displayed on the TV screen automatically during fast forward or rewind.
6. Auto rewind
The video tape is automatically rewound when the end of the tape is reached during the play, recording or quick finder forward mode. (Auto rewind will not function during the next mode when it has been set after the timer recording, fast forward or recording mode.)
7. Auto dimmer display
Between the hours of 23:00 and 6:00, if the VCR is not in use, the FL display is automatically dimmed to a lower light level.

Safety lock system (Remote control only)

This VCR's PLAY button can be locked to prevent access by small children.

This feature can be operated by the remote control only.

To lock: With the VCR POWER ON, press and hold the remote control's stop button for approx. 8 seconds. The safety lock indicator  will appear on the FL display to indicate that the VCR is locked.

To unlock: Press and hold the remote control's play button for approx. 8 seconds. The safety lock indicator will flash and disappear from the display.

Multi-language display

The language of your choice can be selected for the on-screen display. You can choose any one of the following languages: English, German, Spanish, French, Italian, Dutch. If a language is not selected, the VCR will select English automatically.

- 1) Press the MENU button on the remote control unit. The MENU list will be displayed on the TV screen.
- 2) Select the LANGUAGE mode by setting the arrow indicator with the  button. Then press the OK button.
- 3) The LANGUAGE list will be displayed on the TV screen. Then set the arrow to the desired language with  button.
- 4) Press the OK button again. The language list screen will disappear after a few seconds and selected language has been set.

Multi speed playback (Remote control only)

The MULTI SPEED ,  buttons make playback speed increase or decrease possible with the remote control.

The tape speed can be increased up to 15 times the normal playback speed in the forward or reverse directions.

In the forward direction, the speed can also be decreased to 1/12 of the normal playback speed (2 video heads type) and 1/4, 1/8, 1/12, 1/16, or 1/20th of the normal playback speed (3 or 4 video heads type).

Press the remote control's MULTI SPEED PLAY  or  button repeatedly during playback until you reach the desired speed.

During this mode, no sound will be heard.

Playback picture sharpness adjustment (Remote control only)

Playback picture sharpness adjustment is possible with the remote control.

Press the MENU button and select the CONTROL mode by pressing the OK button during playback.

The CONTROL mode will be displayed on the TV screen. Then choose the PICTURE mode with the  button.

Press the  button to sharpen the picture or press the  button to soften the picture.

INTRO SCAN system (Remote control only)

This VCR is capable of quickly fast forwarding (or rewinding) to the beginning of each recorded segment on a tape, briefly playing back that segment, and then fast forwarding (or rewinding) to the next segment.

This system works in combination with the control signal which is recorded at the beginning of each recorded segment.

Press the INTRO SCAN button on the remote control during the "play", "stop", "fast forward" or "rewind" mode. The VCR will immediately fast forward (or rewind) the tape to the beginning of the program and play back about the first 8 seconds. The VCR will then again fast forward (or rewind) the tape to the beginning of the next recorded segment and again play back the first 8 seconds of the program.

This operation continues until the end of the tape (or the beginning of the tape) or another mode (such as PLAY or STOP) is chosen. During the INTRO SCAN mode, the index number will be displayed on the TV screen and flash on the FL display. This number will advance each time an index code is found. The INDX indicator will light on the FL display during the intro scan mode.

While intro scan is searching for the beginning of the program, the fast forward (or rewind) indicator lights and the play indicator flashes. During the 8 seconds of playback, the play indicator lights and the fast forward (or the rewind) indicator flashes.

INDEX SEARCH System (Remote control only)

Use the index search mode to jump directly to the beginning of any recorded segment, within 99 segments of your starting point, in either the forward or reverse direction. Using the index code (automatically added when tapes are recorded on this VCR) as a guide, the VCR forwards or rewinds the video tape to the segment you have chosen and begins playback automatically. Because the index search feature uses the index code that is added to the tape when programmes are originally recorded, this feature will only operate with tapes that include this index code.

Press the INDEX SEARCH forward or reverse button the number of index codes you wish to skip on the remote control.

The tape will be fast forwarded or quickly rewound to the desired segment and playback will begin automatically.

During the index search mode the index number will be displayed on the TV screen and flash on the FL display. This number will decrease each time an index code is found.

Tracking adjustment (manual)

Playback tracking adjustment is possible with the remote control.

Press the MENU button and select the CONTROL mode by pressing the OK button during playback.

The CONTROL mode will be displayed on the TV screen. Then choose the TRACKING mode with the $\wedge$ or $\vee$ button.

Press the $<$ or $>$ button repeatedly until the best position is found during the playback mode.

MULTI-SYSTEM operation

This VCR's multi-system allows you to playback NTSC 4.43, NTSC 3.58, PAL, SECAM or MESECAM system (VS-X400:except SECAM) video tapes.

Programs broadcast in these color systems can also be received and output by the VCR.

The VCR can be set for either automatic or manual color system selection.

AUTO mode: When set to the AUTO mode the VCR will automatically detect the color system being used and adjust itself accordingly.

- 1) Press the AUTO/MANUAL button until the AUTO indicator lights.

The VCR is now set to the AUTO mode.

NOTE:

- When a NTSC system tape is played back while the VCR is set to the AUTO mode, the NTSC 4.43 mode will be selected automatically. If you wish to select the NTSC 3.58 mode press the SYSTEM button. After then, press the SYSTEM button you can select the appropriate system (NTSC 4.43 or NTSC 3.58).
- For except VS-X400 EGN, When a SECAM system broadcast is received while the VCR is in the AUTO mode, the MESECAM mode will be selected automatically. When recording, use the SYSTEM button to select the appropriate system (SECAM or MESECAM).
- Once the VCR is set to a color system, that setting will be memorized and recalled whenever a tape recorded in that system is played back or whenever a program being broadcast in that system is received.

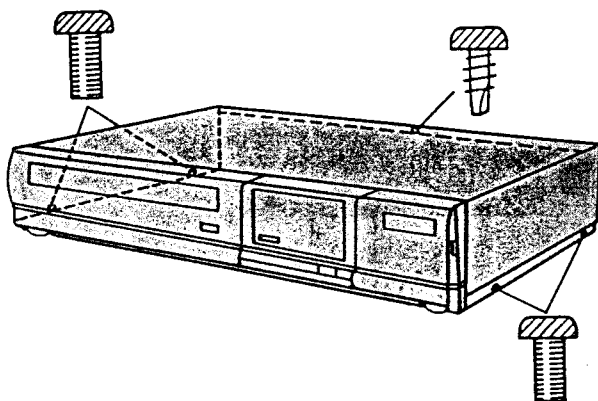
MANUAL mode: When set to the MANUAL mode the desired color system can be selected manually.

- 1) Press the AUTO/MANUAL button until the AUTO indicator goes out.
The VCR is now set to the MANUAL mode.
- 2) Press the SYSTEM button to set the VCR to the desired color system.

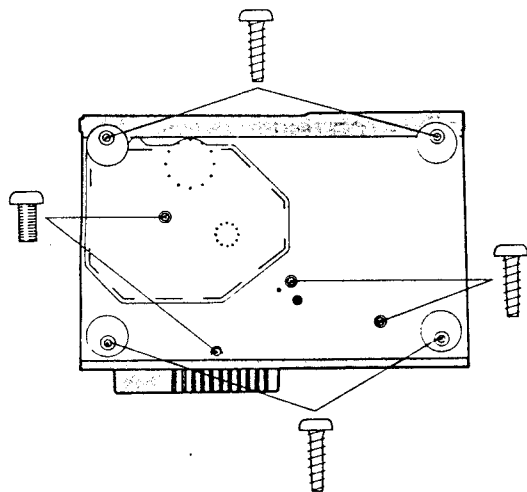
I. DISASSEMBLY

In case of trouble, etc. necessitating dismantling, please dismantle in the order shown in the illustrations. Reassemble in reverse order. When re-attaching the FRONT PANEL, hold the cassette loading slot door in the upright (open) position.

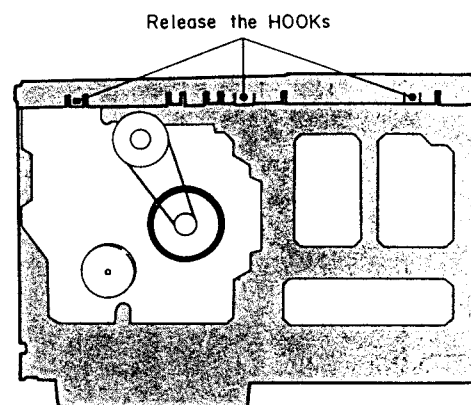
1. Removal of UPPER COVER



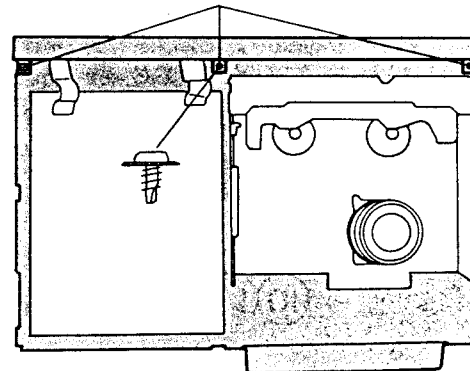
2. Removal of BOTTOM COVER



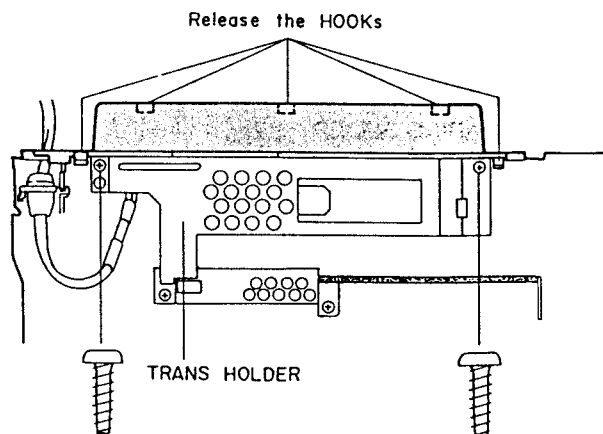
3. Removal of FRONT PANEL



Release the HOOKs



4. Removal of TRANS COVER



Release the HOOKs

TRANS HOLDER

II. PRINCIPAL PARTS LOCATION

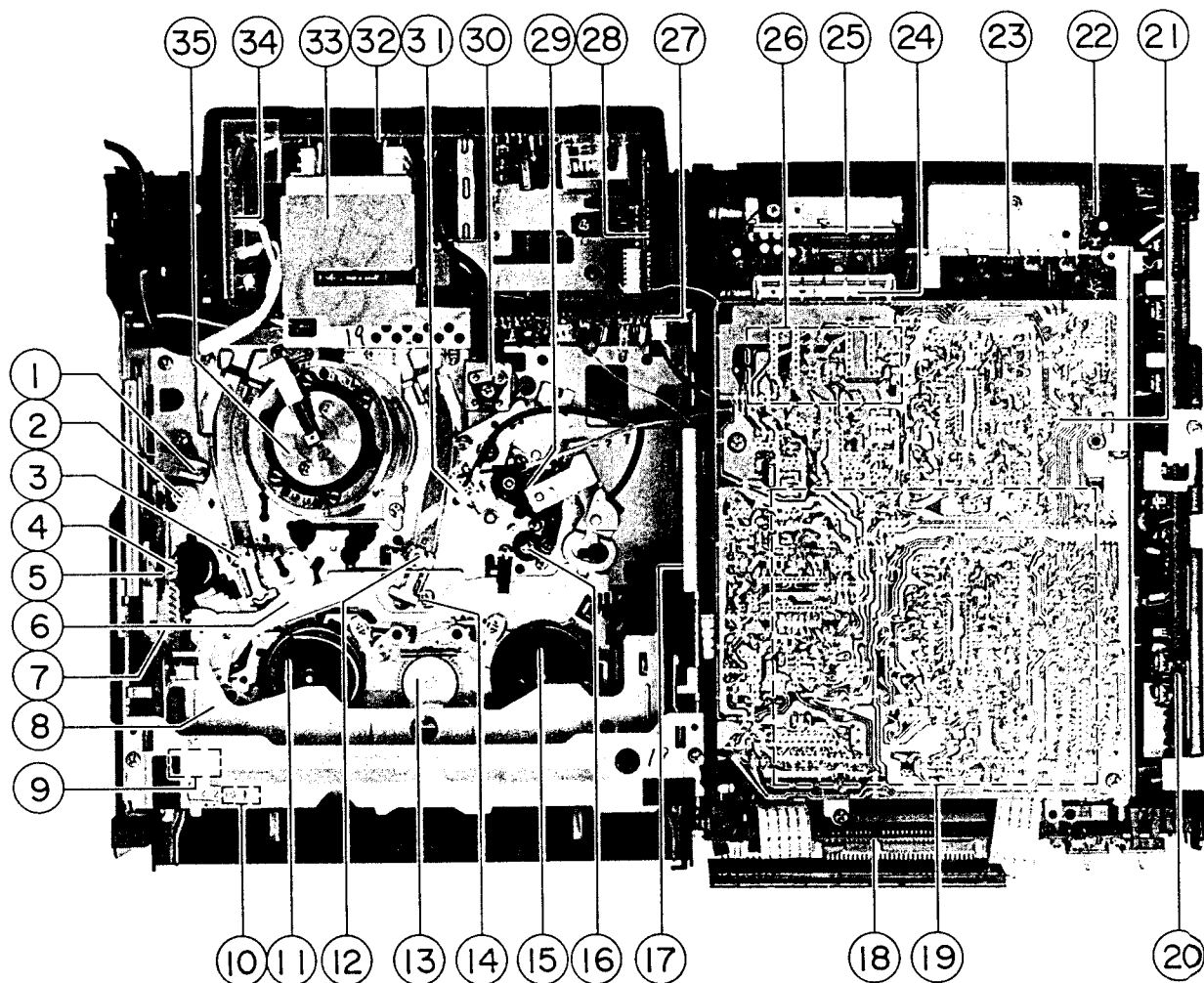


Fig. 2-1 Top view

- | | |
|--------------------------------|---------------------------------------|
| 1. FULL TRACK ERASE HEAD | 19. VIF/SJ (A) PCB (VS-X470 EGN ONLY) |
| 2. SUPPLY TAPE GUIDE | 20. VIDEO PCB |
| 3. SUPPLY LOADING LEADER | 21. CHROMA PCB |
| 4. FRONT LOADING GEAR | 22. MAIN PCB |
| 5. SENSOR (S) PCB (END SENSOR) | 23. VIF/SJ (B) PCB (VS-X470 EGN ONLY) |
| 6. TENSION ARM | 24. RF CONVERTOR UNIT |
| 7. FRONT LOADING SLIDER | 25. TUNER UNIT |
| 8. CASSETTE LOAD BLK | 26. VIF UNIT (EXCEPT VS-X470 EGN) |
| 9. LOADING MOTOR | 27. PRE AMP PCB |
| 10. REC SAFETY SWITCH | 28. POWER SUPPLY (B) PCB |
| 11. SUPPLY REEL TABLE | 29. PINCH ROLLER |
| 12. TAKE UP LOADING LEADER | 30. POWER SUPPLY (C) PCB |
| 13. IDLER PART | 31. AUDIO/CONTROL/S.ERASE HEAD |
| 14. SENSOR LED | 32. POWER SUPPLY (A) PCB |
| 15. TAKE UP REEL TABLE | 33. POWER TRANSFORMER |
| 16. CAPSTAN MOTOR | 34. POWER SUPPLY (D) PCB |
| 17. SENSOR (T) (START SENSOR) | 35. VIDEO HEAD DRUM BLOCK |
| 18. OPERATION PCB | |

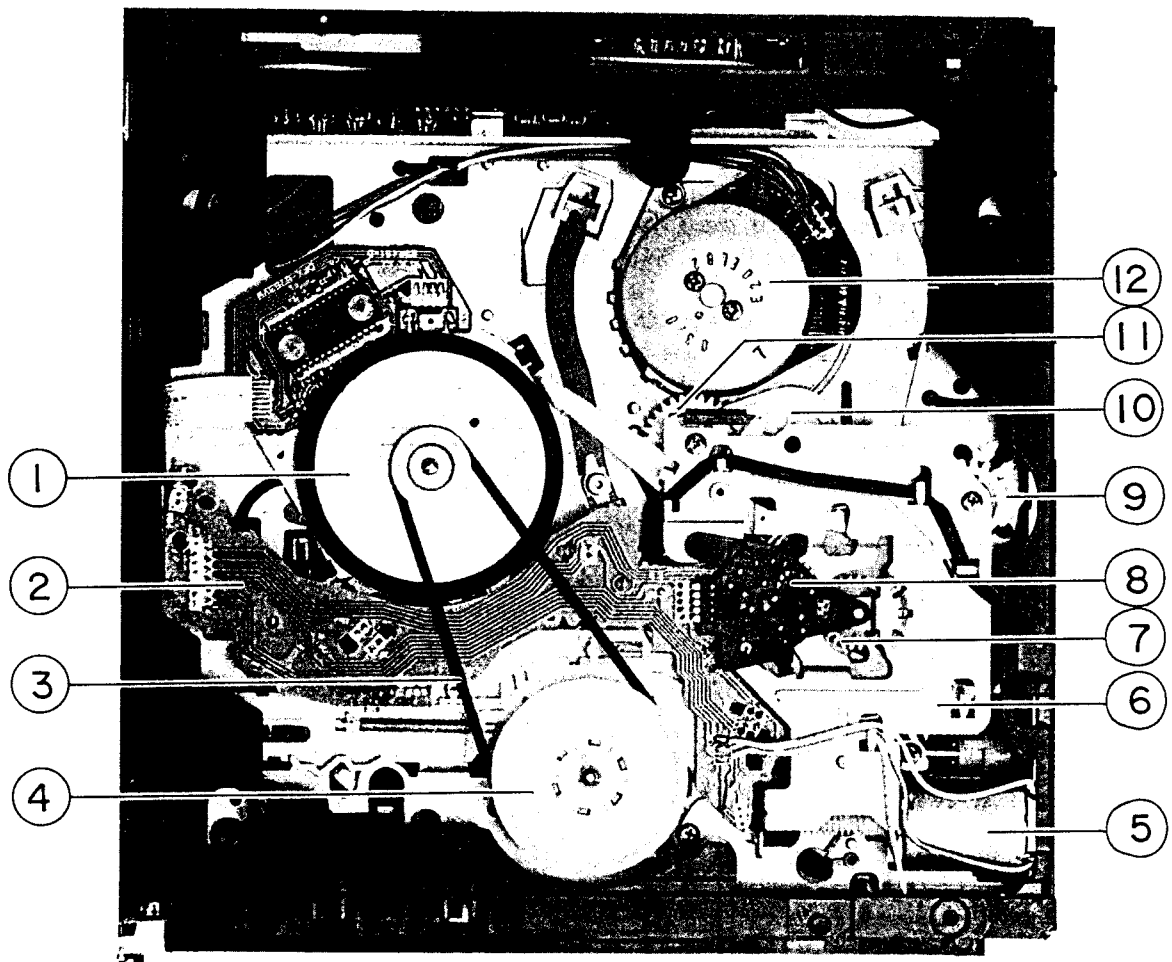


Fig. 2-2 Bottom view

1. CAPSTAN MOTOR BLOCK
2. SENSOR PCB
3. CAPSTAN BELT
4. CLUTCH DISK PART
5. LOADING MOTOR
6. LOADING DRIVE BLOCK

7. CAM SLIDER GEAR
8. MODE SELECT SWITCH
9. FRONT LOADING GEAR
10. TOGGLE (S) GEAR BLOCK
11. TOGGLE (T) GEAR BLOCK
12. DRUM MOTOR BLOCK

III. MAIN COMPONENTS REPLACEMENT

3-1. REMOVAL OF THE EJECTOR BLOCK

* Set the loading mechanism to the "EJECT" position by pressing the EJECT button. Then disconnect the AC power plug from the AC socket before proceeding.

3-1-1. Removal of the CASSETTE LOAD BLK

- 1) Remove the two (A) screws on the UPPER PLATE as shown in Fig. 3-1 then remove the UPPER PLATE.
- 2) Lift up the FRONT GUIDE while pushing the CASSETTE LOAD BLK backward, then remove the FRONT GUIDE.
- 3) Lift up the front side of the CASSETTE LOAD BLK gently then remove it. To avoid damaging the pins of the CASSETTE LOAD BLK and the groove of the MECHA.FRAME, do not add excessive force to the CASSETTE LOAD BLK when removing it.

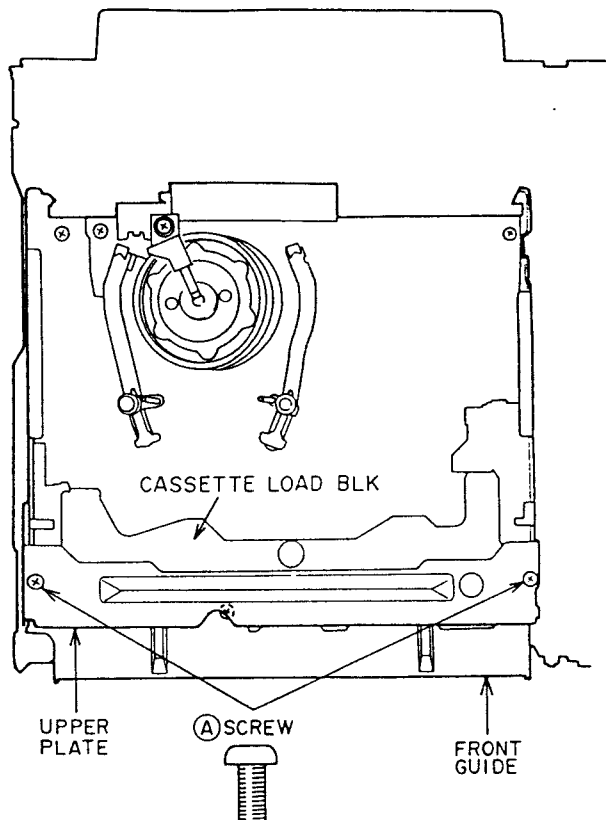


Fig. 3-1

3-1-2. Removal of the LOADING ARM BLK

- 1) Release the stopper on the right side end of the LOADING ARM BLK's shaft (Refer Fig. 3-2) by pressing the stopper tab with a flat head (→) screwdriver. Then remove the shaft's right end from the bracket.

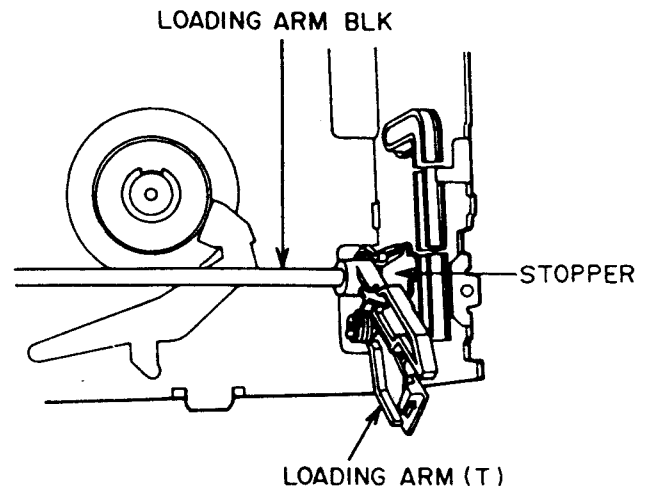


Fig. 3-2

- 2) Hold the LOADING ARM (T) and turn it 30 degrees clockwise, then pull out the shaft's left end from the bracket. To avoid damaging the JOINT GEAR and EJECT GEAR, take special care when removing. (Refer Fig. 3-3)

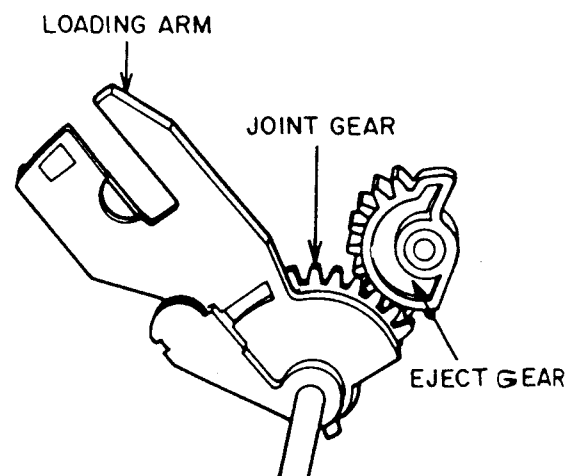


Fig. 3-3

3-2. REMOVAL OF THE SENSOR PC BOARD

* Before proceeding with removal of the SENSOR PCB the loading mechanism must be set to the "unloaded" position (the position where the CAM SLIDER GEAR's groove mark is visible through the hole of the MODE SELECT SW.) as shown in Fig. 3-4.

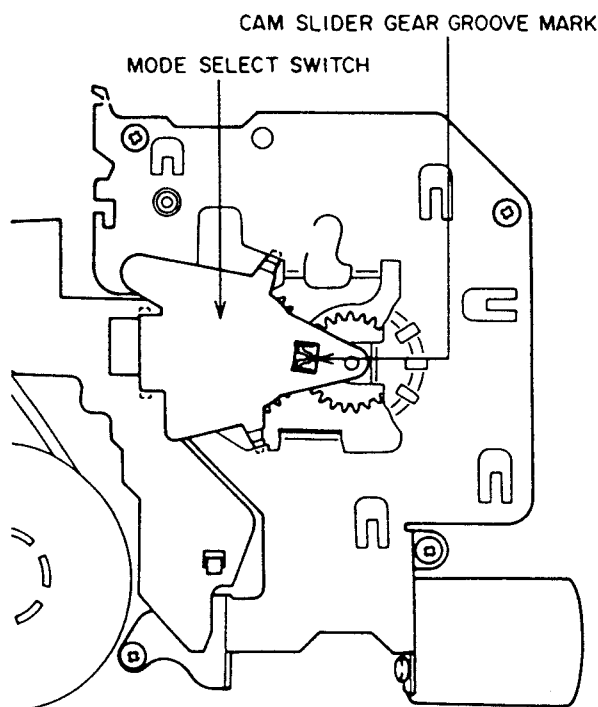


Fig. 3-4

To set the loading mechanism to the "unloaded" position, proceed with one of the following 1) or 2) procedures.

- 1) Insert a video cassette tape which you no longer need. Once the tape has been loaded or has entered the "play" mode press the POWER button to turn the power off. Disconnect the AC power plug from the AC socket after the cassette tape has been unloaded.
- 2) Remove the UPPER PLATE, FRONT GUIDE and CASSETTE LOAD BLK. (Refer to 3-1-1. Removal of the CASSETTE LOAD BLK.)

Plug in the AC power cord. The LOADING ARM BLK will move backward (the cassette load BLK will be in the down position) and forward (the cassette load BLK will be in the eject position) continuously.

With your fingers, cover and hold both SENSOR (S) and SENSOR (T) at the same time when the LOADING ARM BLK is in the backward position. The unit will enter the "play" mode without the cassette tape. While covering both sensors, press the "POWER" button. The unit will now enter the "tape unloaded" position. Release your fingers from the sensors, and disconnect the AC power plug from the AC power socket.

3-2-1. Removal of the MODE SELECT SWITCH

- 1) Release the two (A) stoppers as shown in Fig. 3-5.

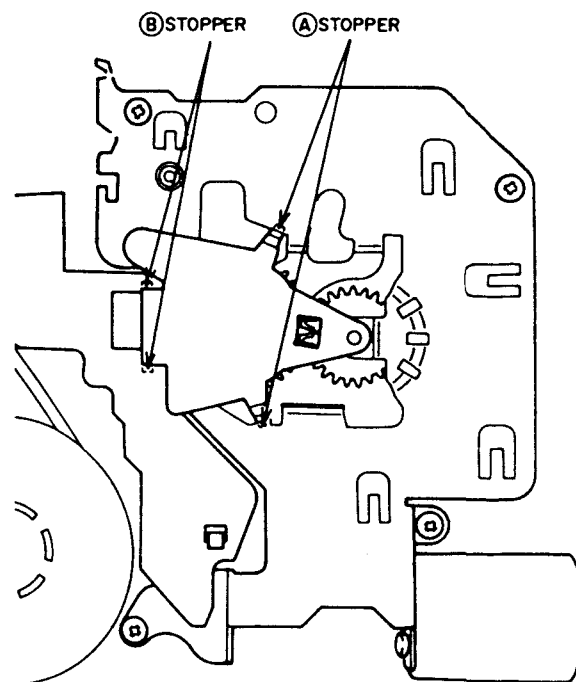


Fig. 3-5

- 2) Release the two (B) stoppers carefully while pulling up the MODE SELECT SWITCH. Then remove the MODE SELECT SWITCH. (Do not damage the pins of the MODE SELECT SWITCH or the connector P1 on the SENSOR PCB).

3-2-2. Removal of the SENSOR PC Board

- 1) Disconnect the connector P403 on the MAIN PCB.
- 2) Remove the capstan belt.
- 3) Release the (A), (B) and (C) stoppers as shown in Fig. 3-6. Then remove the SENSOR PCB.

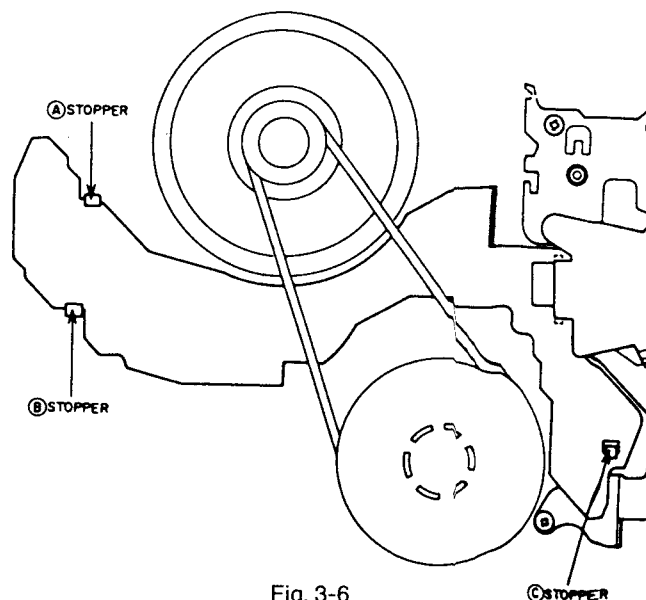


Fig. 3-6

3-3. REMOVAL OF THE LOADING DRIVE BLK

Set the loading mechanism at the "unloaded" position as well as 3-2 (REMOVAL OF THE SENSOR PC BOARD). However this time, to avoid damaging the tape and mechanical parts, refer to 3-2, *(2) only.

- 1) Remove the MODE SELECT SWITCH in the same manner as 3-2-1 (Removal of the MODE SELECT SWITCH).
- 2) Unhook the five wires from each tab. Two wires from the SENSOR(S), two wires from the LOADING MOTOR and one wire from the REC SAFETY SWITCH.
- 3) Remove the ①, ②, ③ and ④ screws, then remove the LOADING DRIVE BLK as shown in Fig. 3-7.

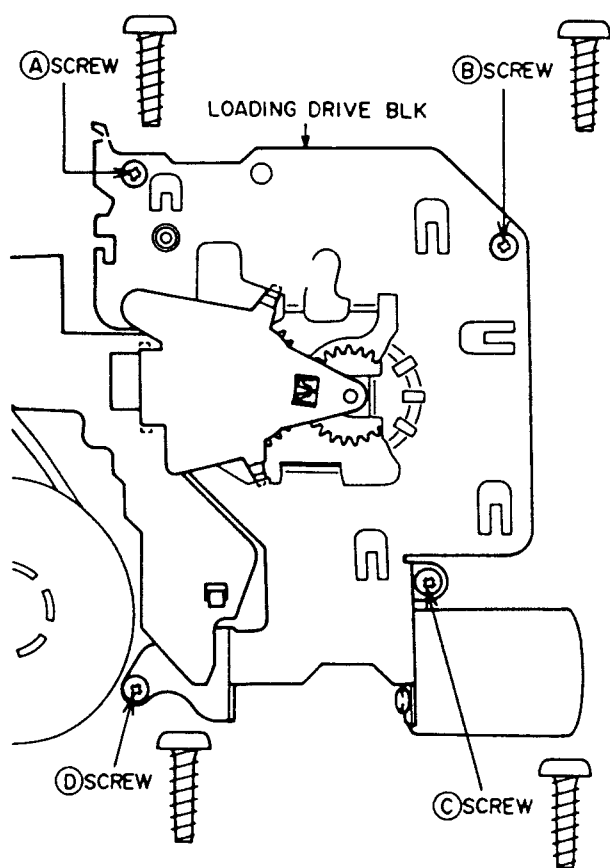


Fig. 3-7

3-4. REPLACEMENT OF THE PINCH HOLDER PART

- 1) Remove the grip ring and release the stopper of the PINCH ARM and remove the PINCH ARM BLK as shown in Fig 3-8.

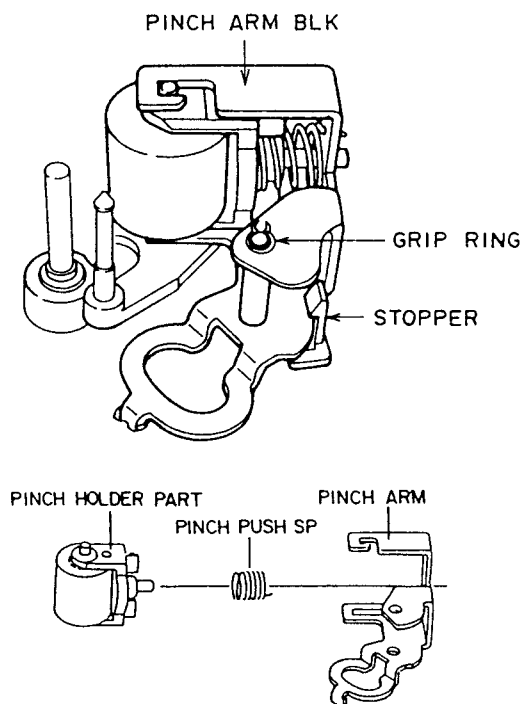


Fig. 3-8

- 2) Turn the PINCH HOLDER PART 30 degrees clockwise while pushing it backward and remove the PINCH HOLDER PART from the PINCH ARM.
- 3) Reassemble the PINCH ROLLER ARM BLK in the reverse order of 1) to 2).

3-5. REPLACEMENT OF THE IDLER PART AND REVIEW BRAKE PART

- 1) Remove the CASSETTE LOAD BLK & ARM LOADING BLK. (Refer to 3-1, REMOVAL OF THE EJECTOR BLK.)
- 2) Release the stopper of the IDLER PART as shown in Fig. 3-9, then remove it.

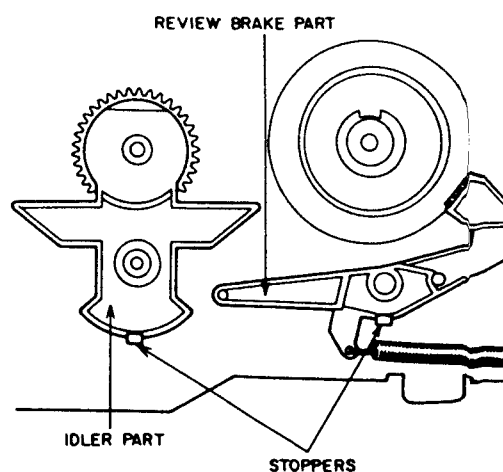


Fig. 3-9

- 3) Take off the review brake part spring, then release the stopper of the REVIEW BRAKE PART and remove it.
- 4) Reassemble these parts in the reverse order of 1) to 3).

3-6. REASSEMBLY OF THE LOADING MECHANISM BLK

3-6-1. Position of the TOGGLE GEARS (T) and (S)

- 1) Set the TOGGLE GEAR (T) and TOGGLE GEAR (S) to the unloaded position with your fingers. Align the (A) mark on the TOGGLE GEAR (S) with the (A) hole of the TOGGLE GEAR (T) as shown in Fig. 3-10.

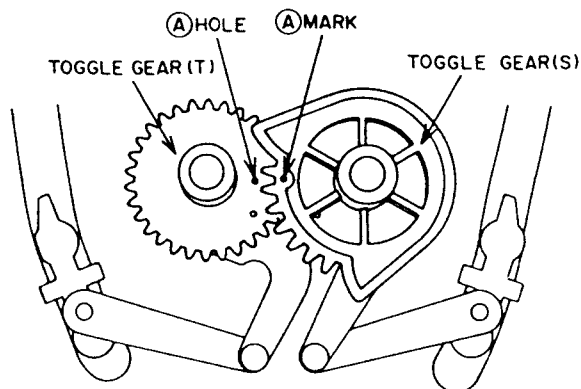


Fig. 3-10

3-6-2. Installation of the CAM SLIDER GEAR & FRONT LOADING GEAR

- 1) Attach the WORM WHEEL GEAR as shown in Fig. 3-11.

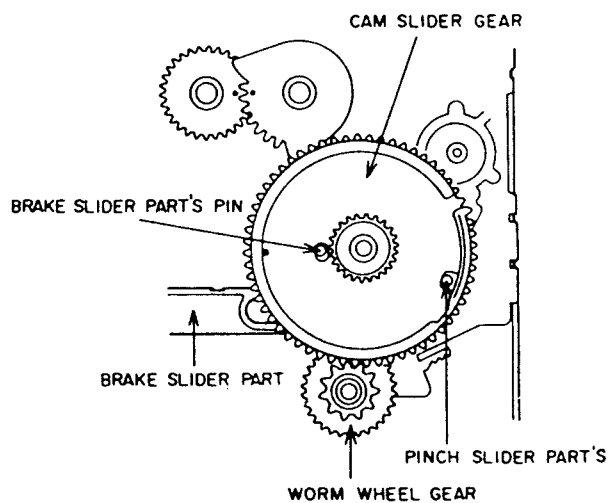


Fig. 3-11

- 2) Set the CAM SLIDER GEAR. At this time, adjust the position of the BRAKE SLIDER PART and PINCH SLIDER PART so that both pins appear through the holes on the CAM SLIDER GEAR as shown in Fig. 3-11.

- 3) Attach the FRONT LOADING GEAR as shown in Fig. 3-12. At this time, align the (B) mark on the FRONT LOADING GEAR with the (B) hole of the FRONT LOADING SLIDER as shown in Fig. 3-13.

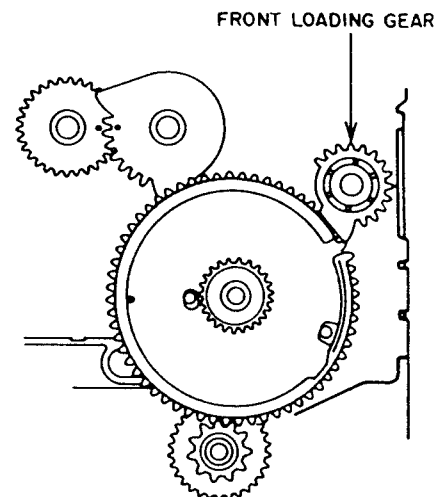


Fig. 3-12

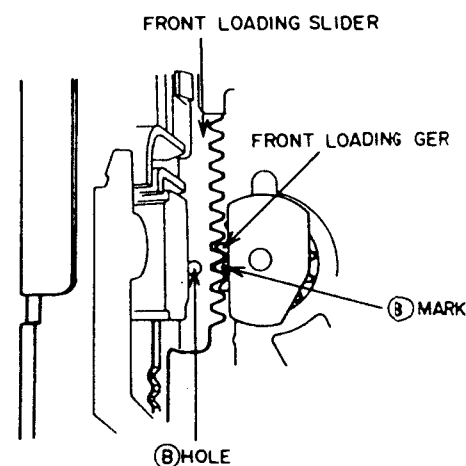


Fig. 3-13

3-6-3. Confirmation of the position of the EJECT GEAR

- 1) Confirm that the EJECT GEAR is in the correct position as shown in Fig. 3-14.

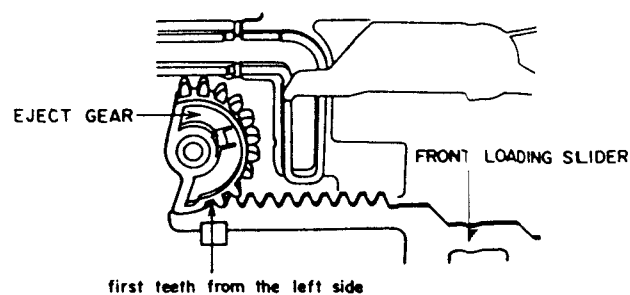


Fig. 3-14

- 2) Install the LOADING DRIVE BLK as shown in Fig. 3-15.

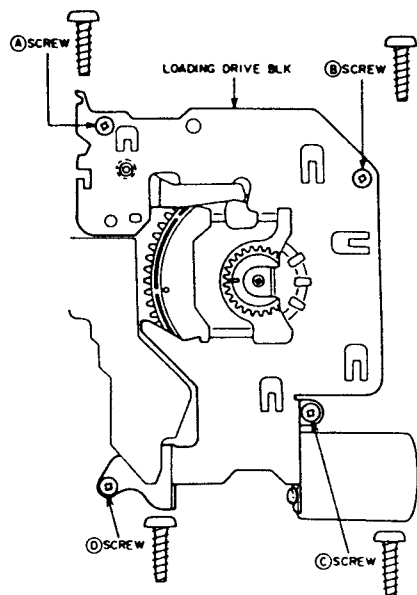


Fig. 3-15

3-6-4. Installation of the MODE SELECT SWITCH

- 1) Set the MODE SELECT SWITCH's gear so that the © mark is in the center of the © hole as shown in Fig. 3-16.

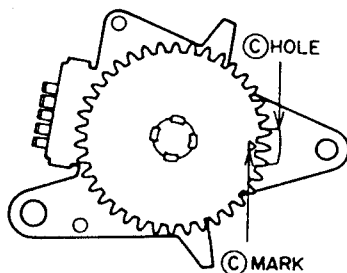


Fig. 3-16

- 2) Attach the MODE SELECT SWITCH to the LOADING DRIVE BLK. At this time, align the hollow of the gear's tooth (reverse side of the © mark) with the © groove of the CAM SLIDER GEAR as shown in Fig. 3-17.

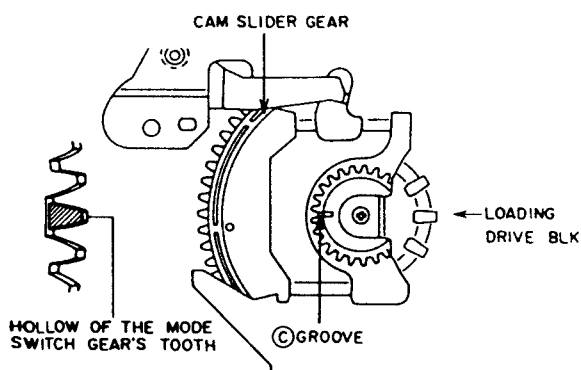


Fig. 3-17

3-6-5. Installation of the LOADING ARM BLK

- 1) While covering the SENSOR (S) with your fingers, connect the AC power plug to the AC socket. The FRONT LOADING SLIDER will reach the "EJECT" position. Then disconnect the AC power plug from the AC socket before you release your fingers from the SENSOR (S).
- 2) Install the LOADING ARM BLK in the reverse order of 3-1-2 (Removal of the LOADING ARM BLK). Set the position between both the EJECT GEAR and the JOINT GEAR as shown in Fig. 3-18.

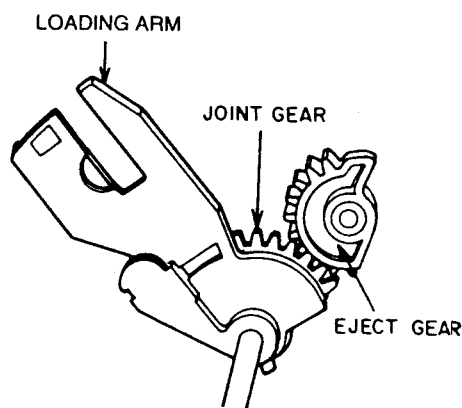


Fig. 3-18

3-6-6. Installation of the CASSETTE LOAD BLK, FRONT GUIDE and UPPER PLATE

- 1) Attach the CASSETTE LOAD BLK, FRONT GUIDE and UPPER PLATE in the reverse order of 3-1-1 (Removal of the CASSETTE LOAD BLK).
- 2) Insert a video cassette tape and confirm that the loading mechanism will operate properly.

3-7. REPLACEMENT OF THE UPPER DRUM

3-7-1. Removal of the UPPER DRUM

- 1) Remove the (A) screw and EARTH BRUSH.

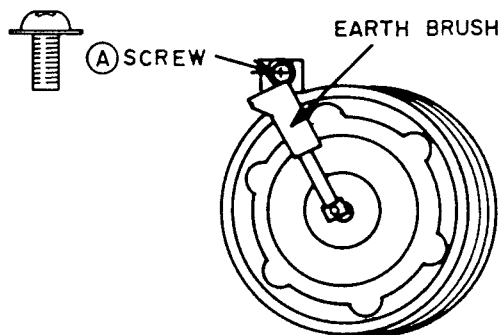


Fig. 3-19

- 2) Unsolder the four (for model VS-X400EGN) or eight (for models VS-X450EGN/X470EGN) relay leads and remove the two upper drum fixing screws as shown in Fig. 3-20.
- 3) Gently lift and remove the UPPER DRUM.

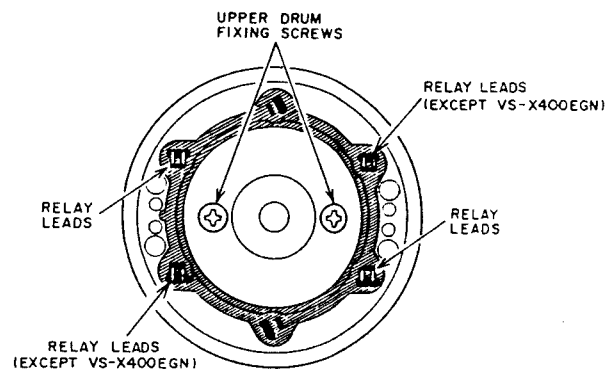
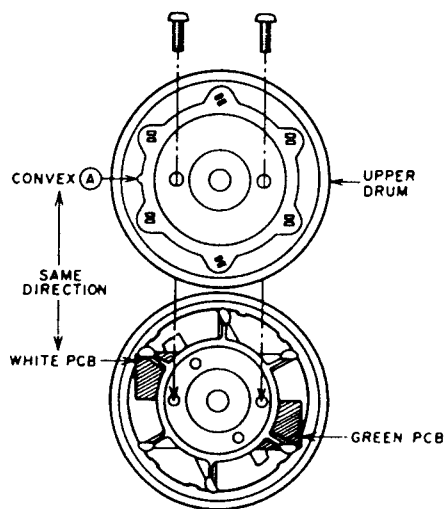


Fig. 3-20

3-7-2. Installation of the UPPER DRUM

[2 HEAD TYPE]

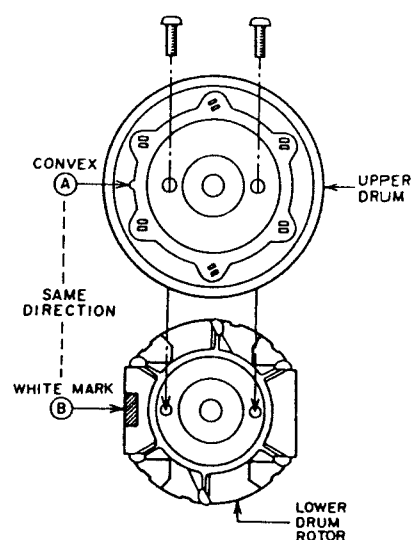
- Attach the UPPER DRUM to the LOWER DRUM ROTOR so that the upper drum convex (A) and lower drum rotor's white PCB side are in the same direction as shown in Fig. 3-21 (a).



(a) 2 Head

[4 HEAD TYPE]

- Attach the UPPER DRUM to the LOWER DRUM ROTOR so that upper drum convex (A) and lower drum rotor's white mark are in the same direction as shown in Fig. 3-21 (b).



(b) 4 Head

Fig. 3-21

NOTE: Because height precision is required for proper performance, and because head tips are fragile, the following points should be noted when replacing the UPPER DRUM BLOCK.

- (a) Do not loosen the set screw on the collar preload.
- (b) Before fixing, use alcohol to clean both surfaces where the upper drum and the rotary transformer meet.
- (c) If the UPPER DRUM can not be inserted on to the shaft easily during installation, clean the hole in the UPPER DRUM with alcohol and put a little oil on the shaft.
- (d) Make sure that the upper drum fixing screw holes on the rotary transformer part and the upper drum fixing screw penetration holes match exactly before inserting the fixing screws.
- (e) Tighten the two upper drum fixing screws alternately and gradually.

3-7-3. Installation of the earth brush

Install the earth brush in the reverse order of 3-7-1 (Removal of the UPPER DRUM). Set the earth brush's center position as show in Fig. 3-22.

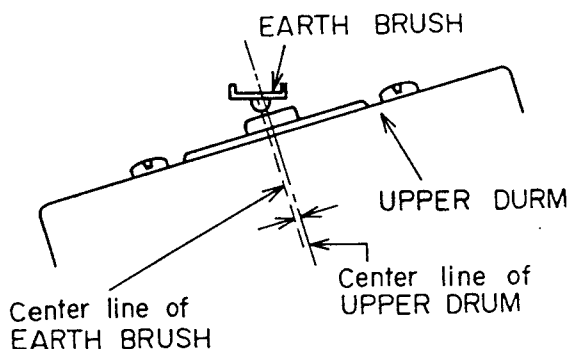


Fig. 3-22

3-7-4. After replacement

After replacement, the following adjustments are necessary for the proper performance.

- 1) Control head Phase adjustment. (IV. MECHANICAL ADJUSTMENT 4-3-3.)
- 2) PB switching point adjustment. (V. ELECTRICAL ADJUSTMENT 5-1. Step 1)
- 3) Video head REC current adjustment. (V. ELECTRICAL ADJUSTMENT 5-2. Steps 1 to 5)

3-8. DRUM MOTOR PC BOARD REPLACEMENT

- 1) Remove the two (A) screws then remove the ROTARY PLATE.

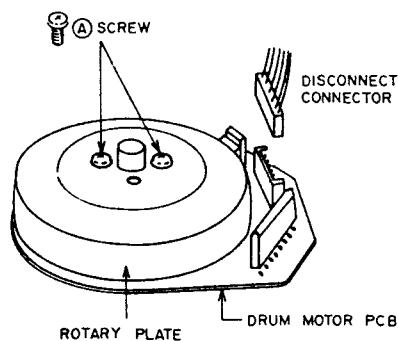


Fig. 3-23

- 2) Remove the three (B) screws and disconnect the connector P1 from the DRUM MOTOR PCB. Then replace the DRUM MOTOR PCB.

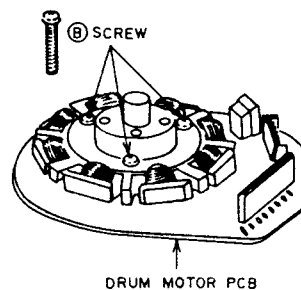


Fig. 3-24

- 3) Attach the ROTARY PLATE to the collar preload so that the rotary plate (C) hole and collar preload (D) hole are in the same direction.

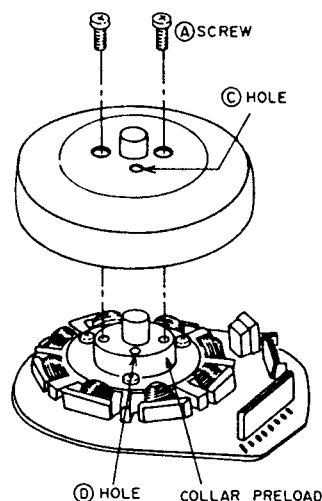


Fig. 3-25

3-9. REMOVAL OF THE MECHANISM BLOCK

3-9-1. Removal of the PRE AMP PC Board

- 1) Remove the ⑥ screw on the POWER SUPPLY (C) PCB and remove the POWER SUPPLY (C) PCB.
- 2) Remove the two ① screws and remove the earth brush then pull up the PRE AMP PCB as shown in Fig. 3-26.

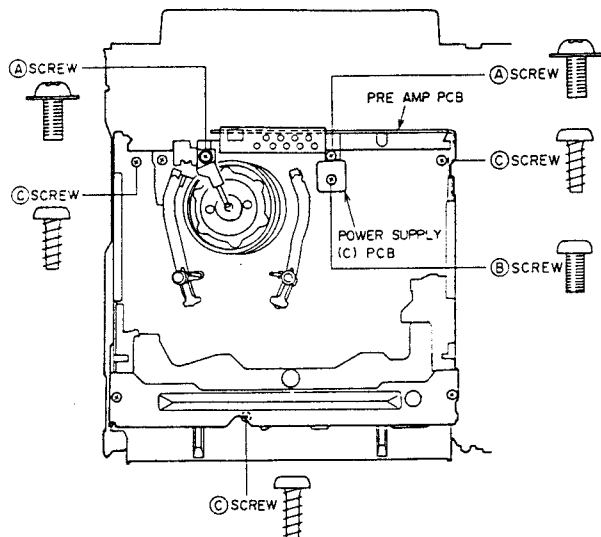


Fig. 3-26

3-9-2. Removal of the MECHANISM BLK (MECHA. FRAME)

- 1) Disconnect the connectors P302, P401, P402 and P403 on the MAIN PCB, P1 on the A/C HEAD PCB.
- 2) Remove the three ③ screws from the MECHA. FRAME as shown in Fig. 3-26.
- 3) Hold the rear side of the MECHA. FRAME then remove by pulling up backward.
- 4) Reassemble in the reverse order for installation.

IV. MECHANICAL ADJUSTMENT

4-1. BACK TENSION ADJUSTMENT

- 1) Set the color bar test tape TF-532CBS (AT-751360) in the VCR and play it back.
- 2) Observe the TV screen and adjust the V-HOLD of the TV so that the switching point appears on the TV screen as shown in Fig. 4-1.

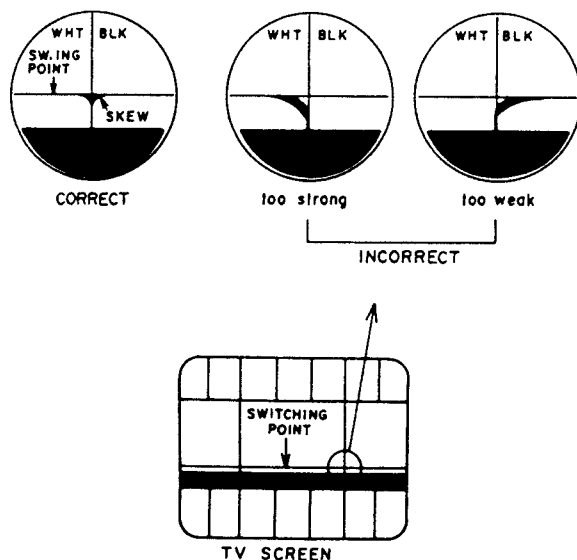


Fig. 4-1

- 3) Check the skew near the switching point on the TV screen and if the back tension is too strong or too weak, eject the tape and select the hook position of the TENSION SPRING where the smallest skew should be obtained.

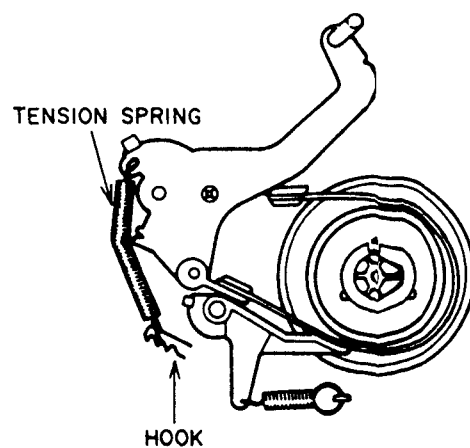


Fig. 4-2

4-2. TAPE TRANSPORT ADJUSTMENTS

NOTE: The following adjustments are required only when an irregularity is found since these adjustments are performed precisely at the factory.

4-2-1. Tape curl adjustment at the TAKE-UP TAPE GUIDE

- 1) Play back a recorded tape which is no longer needed.
- 2) Turn the (A) screw on the A/C HEAD BLK until the edge of the tape barely touches the lower part of TAKE UP TAPE GUIDE without any curl or wrinkle.
- 3) Once the (A) screw is adjusted, A/C HEAD height and azimuth adjustment is required. (Refer to 4-3. A/C HEAD POSITION ADJUSTMENT.)

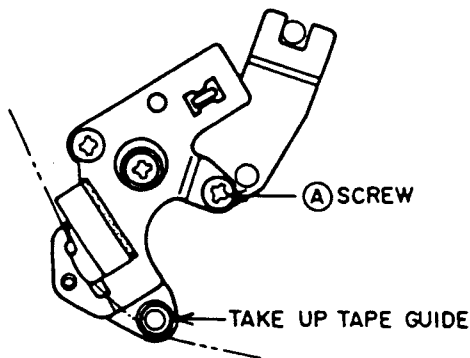
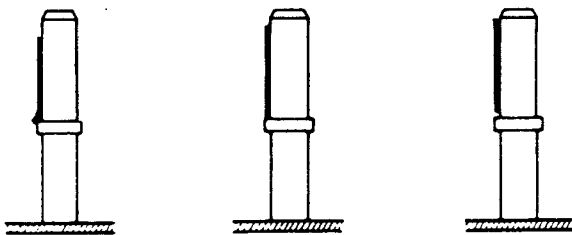


Fig. 4-3



(a) INCORRECT

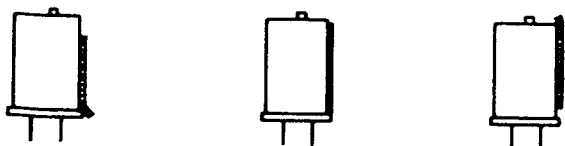
(b) CORRECT

(c) INCORRECT

Fig. 4-4

4-2-2. Confirmation of tape curl at the SUPPLY TAPE GUIDE

Confirm that the edge of the tape barely touches the lower part of the SUPPLY TAPE GUIDE without any curl or wrinkle as shown in Fig. 4-5.



INCORRECT

CORRECT

INCORRECT

Fig. 4-5

4-2-3. REVIEW ARM height adjustment

- 1) Play back the beginning part of an E-240 (T-160) tape and set the unit in the REVIEW mode by pressing the REW button. (Remove the tape protection cover to make the adjustment easy.)

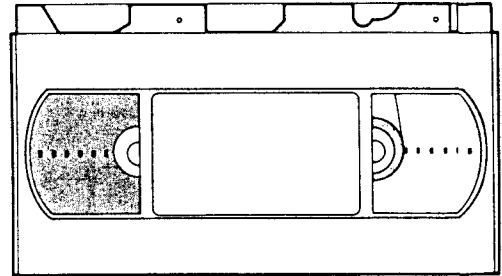


Fig. 4-6

- 2) Turn the REVIEW ARM height (A) nut so that the edge of the tape barely touches the lower part of the TAKE-UP TAPE GUIDE without any curl or wrinkle between the TAKE-UP TAPE GUIDE and the CAPSTAN SHAFT as shown in Fig. 4-7 to Fig. 4-9.

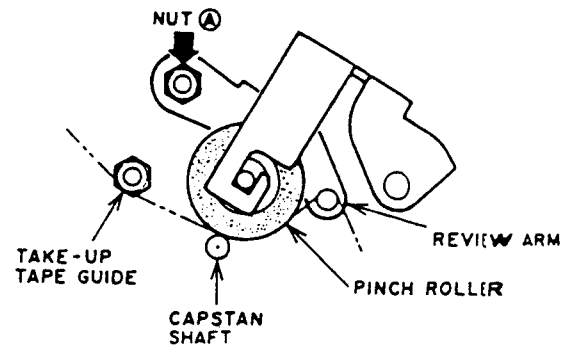
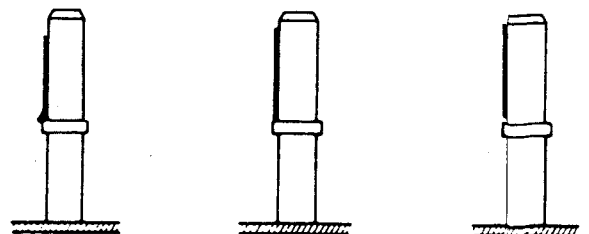


Fig. 4-7

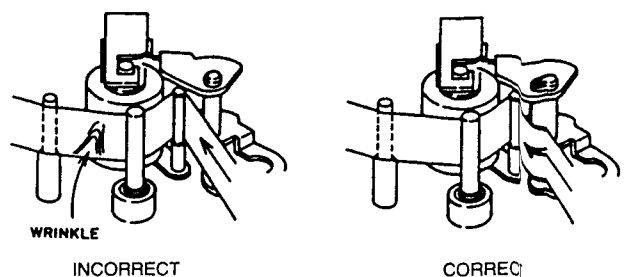


(a) INCORRECT

(b) CORRECT

(c) INCORRECT

Fig. 4-8



WRINKLE

INCORRECT

CORRECT

Fig. 4-9

- 3) Play back the beginning part of an E-240 (T-160) tape and this time set the unit in the CUE mode by pressing the F.FWD button.
- 4) Confirm there is no curl or wrinkle at REVIEW ARM's guide.
If curl or wrinkle of the tape has occurred, slightly turn the Ⓐ nut (Shown in Fig. 4-7) until it disappears.

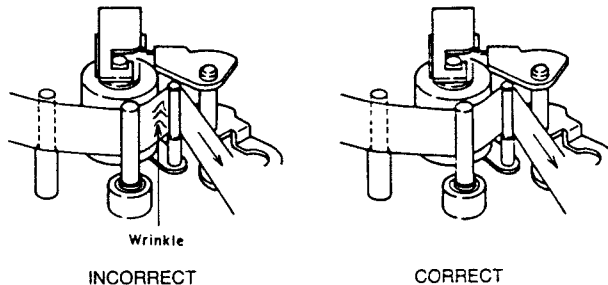


Fig. 4-10

- 5) Set the unit in REVIEW mode again. Then confirm that there is no curl or wrinkle at the TAKE UP TAPE GUIDE.
(A small gap may appear after this adjustment, but this is allowable)

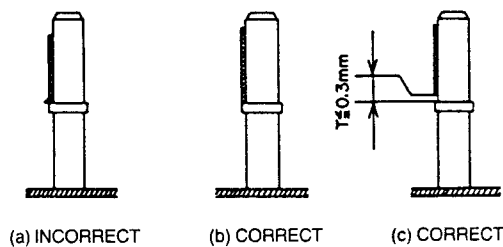


Fig. 4-11

NOTE:

1. If results are not satisfactory, repeat steps 2) to 5).
2. Always play an undamaged tape to obtain satisfactory adjustment.
3. Because an E-240 (T-160) tape can easily be damaged due of its thinness, a pre-adjustment with an E-180 (T-120) tape is recommended.

4-2-4. LOADING LEADER height adjustments

- 1) Slightly loosen the set screw at the lower part of the LOADING LEADERS (L), (R) so that the LOADING LEADER can be adjusted with reasonable tightness. (Refer Fig. 4-12.)
- 2) Play back the reference tape TF-530RFS (AT-751775).
- 3) Connect an oscilloscope's CH-1 to TP1 (ENVE) on the PRE AMP PCB and CH-2 to TP2 (SWP) on the PRE AMP PCB for triggering.
- 4) Turn the LOADING LEADER heads with a flat head (—) screw driver to obtain flat RF envelope as ideal envelope as shown in Fig. 4-13.
- 5) After adjustment is completed, tighten the loading leader set screws.

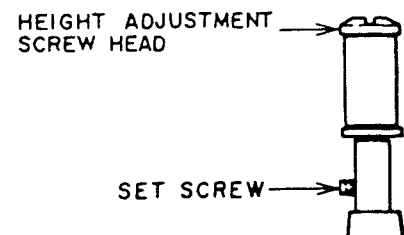


Fig. 4-12

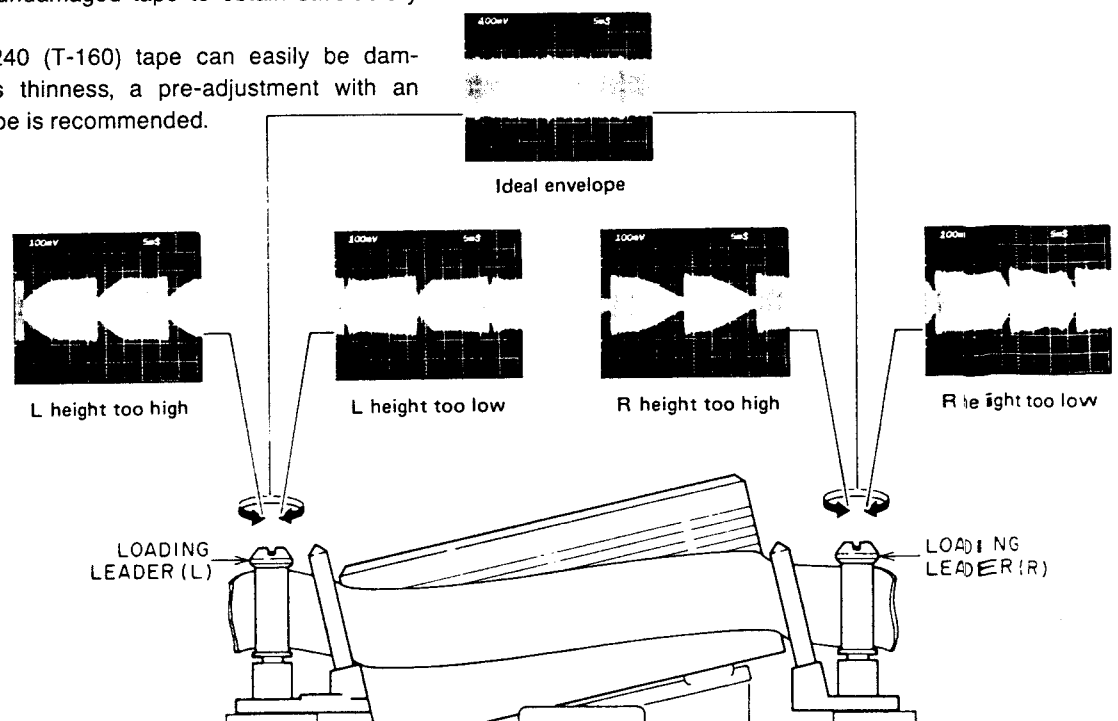


Fig. 4-13

4-3. A/C HEAD POSITION ADJUSTMENT

4-3-1. Azimuth adjustment

- 1) Connect an AC voltmeter or an oscilloscope to the AUDIO OUT terminal on the rear panel.
- 2) Play back the reference tape TF-530RFS (AT-751775).
- 3) Adjust the ⑧ screw to obtain the maximum audio output.

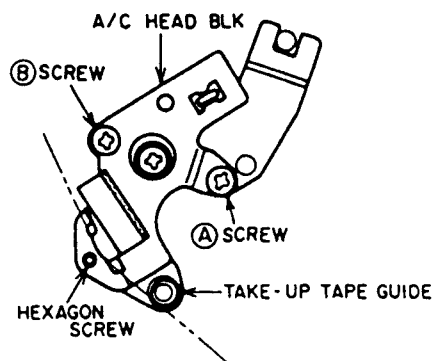


Fig. 4-14

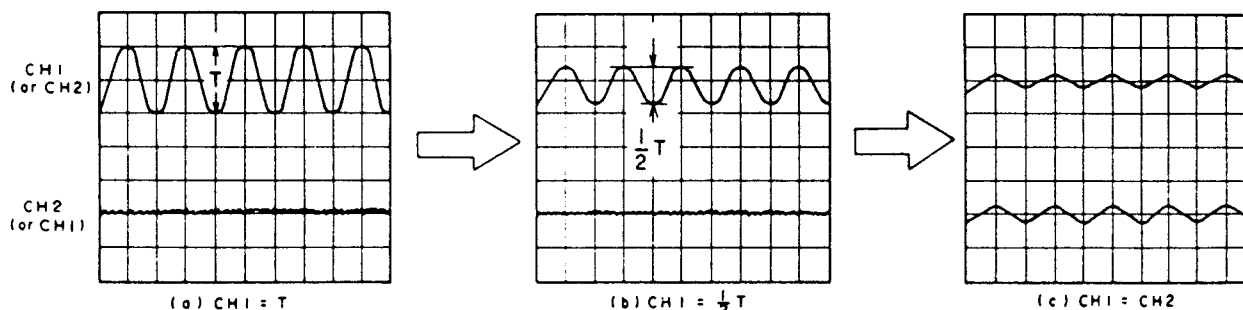


Fig. 4-15

4-3-3. Phase adjustment

- 1) Connect an oscilloscope's CH-1 to TP1 (ENVE) on the PRE AMP PCB and CH-2 to TP2 (SWP) on the PRE AMP PCB for triggering.
- 2) Play back the reference tape TF-530RFS (AT-751775).
- 3) Set the tracking position to the center of the TV screen as shown in Fig. 4-16. (Refer to "TRACKING ADJUSTMENT" in the INFORMATION section for details)
- 4) Loosen the ③ screw slightly so that the A/C HEAD PLATE can be moved with reasonable tightness.
- 5) Insert a sharp flat head (—) screwdriver into the A/C HEAD BASE and ④ hole as shown in Fig. 4-18.
- 6) Move the A/C HEAD BASE by moving a screwdriver in the direction of the arrow as shown in Fig. 4-18 to obtain the maximum RF output, then tighten the ③ screw.

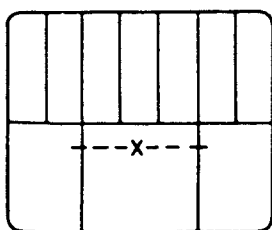


Fig. 4-16

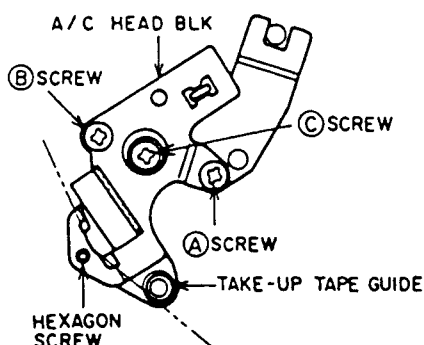


Fig. 4-17

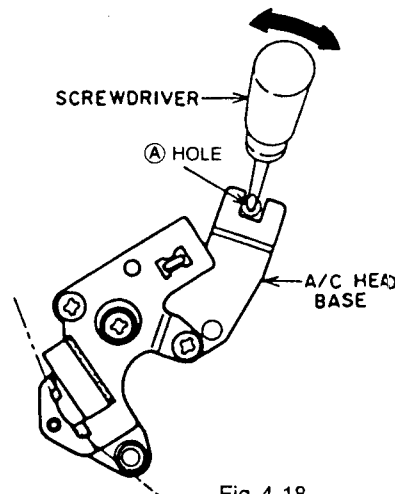


Fig. 4-18

V. ELECTRICAL ADJUSTMENT

5-1. MAIN PCB & VIDEO PCB

Precautionary items prior to adjustments

1. The color bar generator output should be 1.0 Vp-p.
2. The video output terminal should be terminated with 75 ohms (connect dummy load or 75 ohms input TV.)
3. Set the VCR's color system mode to AUTO

Required following test tapes.

Test tape	Parts No.
TF-527BL	AT-711880
TF-530RFS	AT-751775
TF-532CBS	AT-751360
TF-542CBS	AT-751365

STEP	ADJUSTMENT ITEM
1.	MODE and INPUT SIGNAL/TEST TAPE
2.	TEST POINT and ADJ part
3.	REMARKS (●) & RESULT (*)

ADJ. part
Test point

3 AUDIO REC BIAS

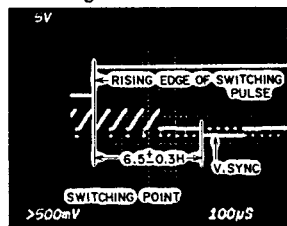
1. "REC", No signal input
2. P306 & VR302
3. • Connect an AC voltmeter to P306 ② pin (GND side) and ① pin. (Do not connect the AC voltmeter's ground to the VCR's ground.)
*Adjust VR302 so that the reading on the AC voltmeter becomes $2.4 \text{ mV} \pm 0.1 \text{ mV}$.

2 AUDIO PB LEVEL

1. "PB", test tape TF-527BL
2. AUDIO OUT & VR301
3. • Connect an AC voltmeter to AUDIO OUT
* $-5 \pm 0.5 \text{ dBs}$

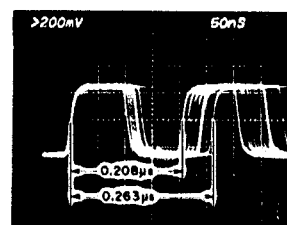
1 PB SWITCHING POINT

1. "PB", test tape TF-530RFS
2. TP 2 (SWP) on PRE AMP PCB, VIDEO OUT & VR401 (SW.POINT)
3. • Connect an oscilloscope's CH-1 to TP 2 for triggering and CH-2 to VIDEO OUT.
*Adjust VR401 so that the switching point is positioned $6.5 \pm 0.3 \text{ H}$ from the V-SYSC left edge as shown.



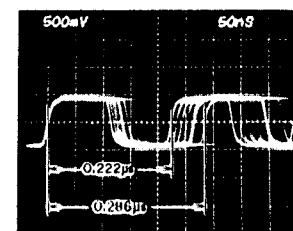
7 CARRIER SET & DEVIATION (PAL)

1. "REC", PAL color bar signal
2. JW 113 (REC.Y) & VR 603 (CARRIER for PAL)
3. • Connect an oscilloscope to JW 113 (REC.Y).
*VR 603 (CARRIER) : $0.263 \mu\text{s}$ (3.8MHz)
*Confirm that the DEVIATION is $0.208 \mu\text{s}$ (4.8MHz)



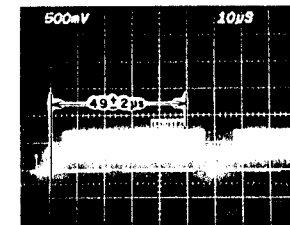
6 CARRIER SET & DEVIATION (NTSC)

1. "REC", NTSC color bar signal
2. JW 113 (REC.Y), VR 604 (CARRIER for NTSC) & VR 605 (DEVIATION)
3. • Connect an oscilloscope to JW 113 (REC.Y).
*VR 604 (CARRIER) : $0.286 \mu\text{s}$ (3.5MHz)
*VR 605 (DEVIATION) : $0.222 \mu\text{s}$ (4.5MHz)



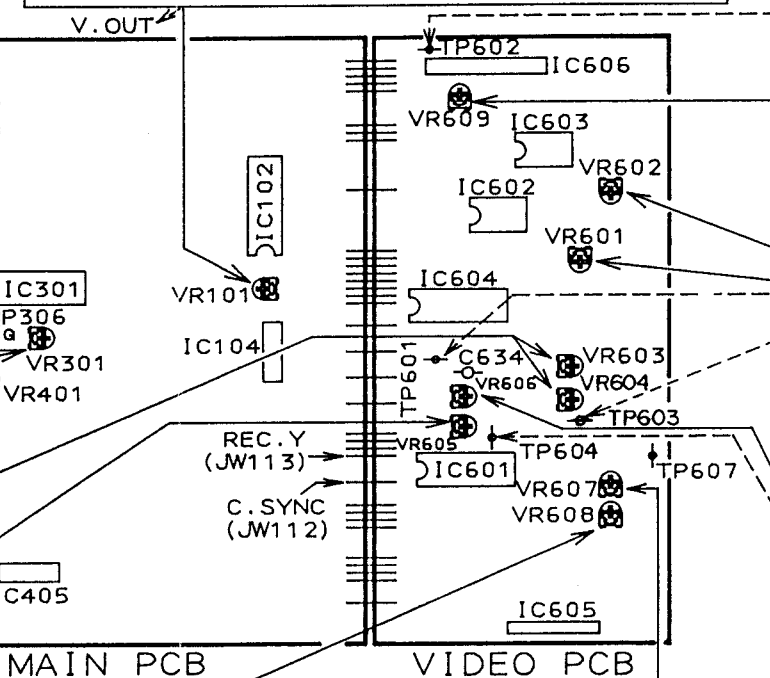
10 CHARACTER POSITION

1. "E-E" (STOP mode), No signal input
2. VIDEO OUT, TV screen & VR101 (IMS)
3. • Press "DISPLAY" button once on the remote control to display elapsed tape counter.
• Connect an oscilloscope to VIDEO OUT
*Adjust VR101 (IMS) so that right end of the IMS signal becomes $49 \pm 2 \mu\text{s}$ from the H-SYSC as shown.



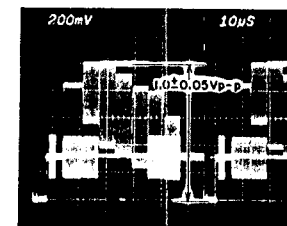
0h00m00s

ON THE SCREEN



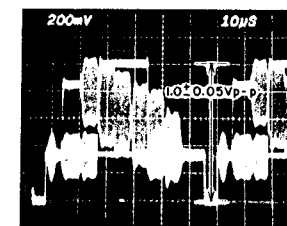
4 VIDEO E-E LEVEL

1. "E-E" (STOP mode), PAL color bar signal
2. VIDEO OUT & VR608 (E-E LEVEL)
3. • Connect an oscilloscope to VIDEO OUT.
* $1.0 \pm 0.05 \text{ Vp-p}$



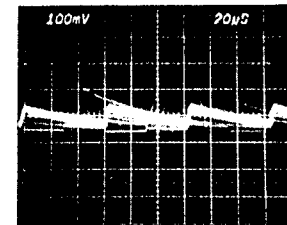
9 VIDEO PB LEVEL

1. "REC" → "PB", PAL color bar signal
2. VIDEO OUT & VR606 (PB LEVEL)
3. • Connect an oscilloscope to VIDEO OUT
• Make some recording on the tape, then play it back
*Adjust VR607 so that PB level becomes $1.0 \pm 0.05 \text{ Vp-p}$

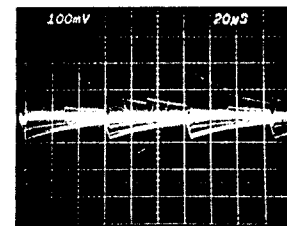


11 AFC ERROR

1. "E-E" (STOP mode), PAL color bar signal
2. TP602 (AFC ERROR) & VR609 (AFC ERROR)
3. • Connect an oscilloscope to TP602 (AFC ERROR).
*Adjust VR609 (AFC ERROR) so that the waveform becomes as flat as possible.



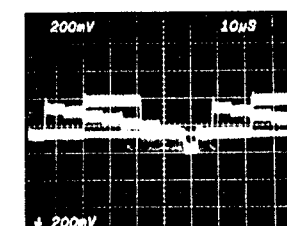
INCORRECT



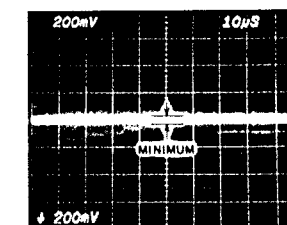
CORRECT

8 CCD

1. "PB", test tape TF-532CBS (PAL), TF-542CBS (NTSC)
2. TP 603 (CCD IN), TP 607 (CCD OUT), VR 601 (PAL CCD LEVEL) & VR 602 (NTSC CCD LEVEL)
3. • Set an oscilloscope's CH-1 to TP 603 (CCD IN) and TP 607 (CCD OUT).
• Set the oscilloscope to "ADD" mode and CH-2's polarity to "INVERTED".
*Adjust VR 601 (PAL CCDLEVEL) so that waveform level on the oscilloscope become minimum.
*Adjust VR 602 (NTSC CCD LEVEL) so that waveform level on the oscilloscope become minimum.



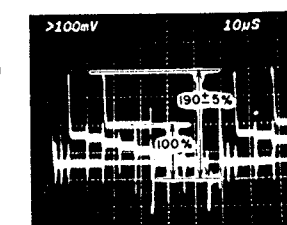
INCORRECT



CORRECT

5 WHITE CLIP

1. "E-E" (STOP mode), PAL color bar signal
2. TP604 (W.CLIP) & VR606 (W.CLIP)
3. • Connect an oscilloscope to TP604 (W.CLIP)
*Adjust VR606 (W.CLIP) so that white clip level becomes $190 \pm 5 \%$ as shown.



5-2. CHROMA PCB & PRE AMP

Precautionary items prior to adjustments

1. The color bar generator output should be 1.0 Vp-p.
2. The video output terminal should be terminated with 75 ohms (connect dummy load or 75 ohms input TV.)
3. Set the VCR's color system mode to AUTO

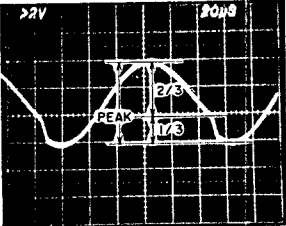
Required following test tapes:

Test tape	Parts No.
TF-512CB	AT-750799

STEP	ADJUSTMENT ITEM
1.	MODE and INPUT SIGNAL/TEST TAPE
2.	TEST POINT and ADJ part
3.	REMARKS (•) & RESULT (*)

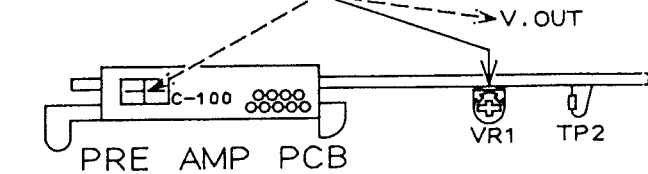
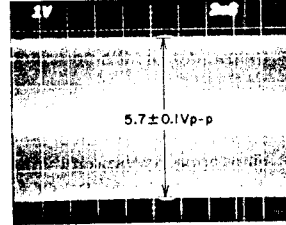
9 P/S AUTO E-E SENSITIVITY

1. "E-E" (stop mode), SECAM color bar signal
2. TP 101 (E-E P/S SENS) & VL 101 (E-E P/S SENS)
3. • Set the VCR's color system mode to SECAM.
• Connect an oscilloscope to TP 101.
*Adjust the VL 101 so that distorted point of the waveform become 1/3 from the bottom as shown.



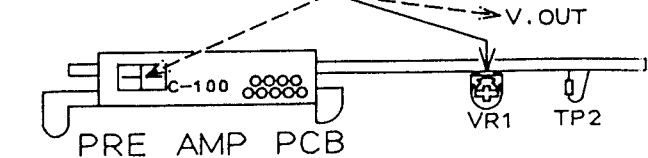
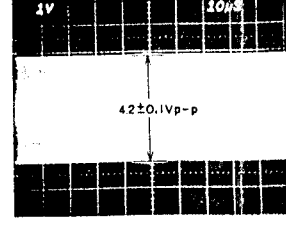
4 VIDEO REC Y CURRENT (VS-X400 EGN ONLY)

1. "REC", No signal
2. C 100 (REC-I), VIDEO OUT & VR 1 (REC-Y)
3. • Set the VCR's color system mode to PAL.
• Connect an oscilloscope's CH-1 to C 100, CH-2 to VIDEO OUT for triggering and ground to PRE AMP PCB.
*Adjust VR 1 so that the REC level is 5.7 ± 0.1 Vp-p as shown.



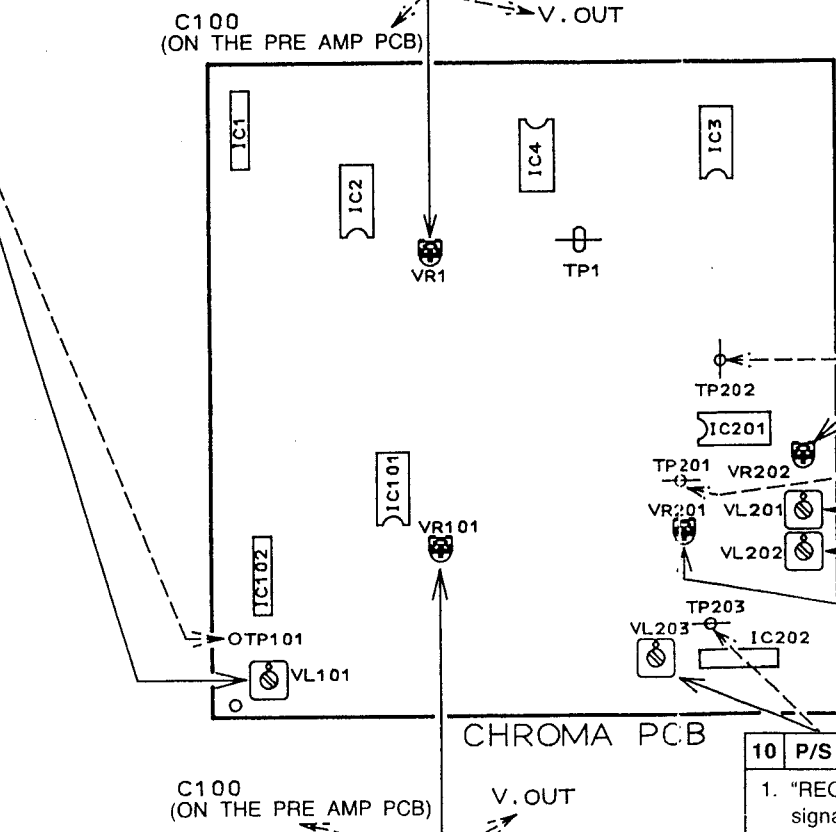
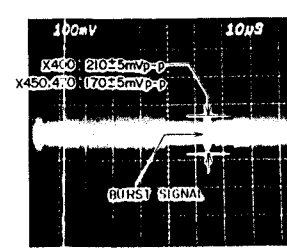
5 VIDEO REC Y CURRENT (EXCEPT VS-X400 EGN)

1. "REC" (LP mode), No signal
2. C 100 (REC-I), VIDEO OUT & VR 1 (REC-Y)
3. • Set the VCR's color system mode to PAL.
• Connect an oscilloscope's CH-1 to C 100, CH-2 to VIDEO OUT for triggering and ground to PRE AMP PCB.
*Adjust VR 1 so that the REC level is 4.2 ± 0.1 Vp-p as shown.



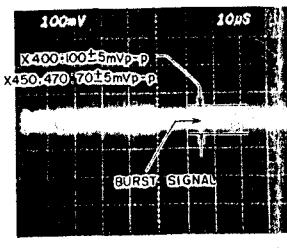
1 VIDEO REC CHROMA CURRENT (NTSC)

1. "REC"(X450/X470:EP mode), NTSC color bar signal
2. C 100 (REC-I), VIDEO OUT & VR 1 (REC-CHROMA)
3. • Connect an oscilloscope's CH-1 to C 100, CH-2 to VIDEO OUT for triggering and ground to PRE AMP PCB.
• Turn the VR 1 (REC-Y : on the PRE AMP PCB) fully counter-clockwise.
*Adjust VR 1 (REC-CHROMA) so that the chroma REC current becomes 210 ± 5 mVp-p (VS-X400 EGN), 170 ± 5 mVp-p (except VS-X400 EGN) at the burst signal area.



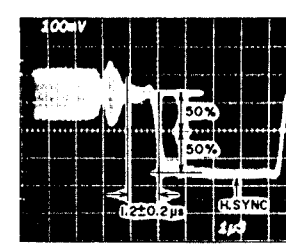
2 VIDEO REC CHROMA CURRENT (PAL)

1. "REC" (X450/X470:LP mode), PAL color bar signal
2. C 100 (REC-I), VIDEO OUT & VR 101 (REC-CHROMA)
3. • Connect an oscilloscope's CH-1 to C 100, CH-2 to VIDEO OUT for triggering and ground to PRE AMP PCB.
• Turn the VR 1 (REC-Y : on the PRE AMP PCB) fully counter-clockwise.
*Adjust VR 101 (REC-CHROMA) so that the chroma REC current becomes 100 ± 5 mVp-p (VS-X400 EGN), 70 ± 5 mVp-p (except VS-X400 EGN) at the burst signal area.



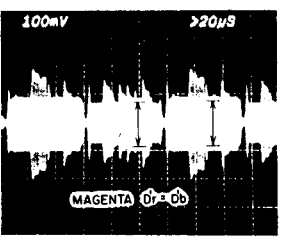
8 NOISE GATE

1. "PB", test tape TF-512CB
2. VIDEO OUT & VR202 (NOISE GATE)
3. • Connect an oscilloscope's CH-1 to VIDEO OUT and CH-2 to JW112 (C.SYNC) on MAIN PCB for triggering.
*Adjust VR202 so that the noise gate pulse width is 1.2 μ s from center of the leading edge of the H.SYNC as shown.



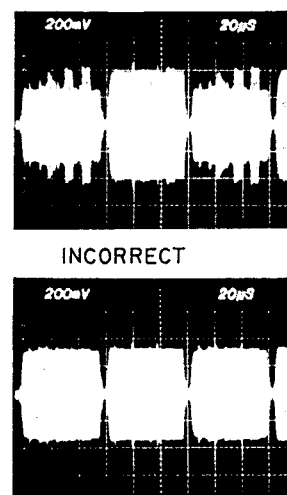
6 EQUALIZER LEVEL

1. "REC", SECAM color bar signal
2. TP 201 & VL201 (EQ LEVEL)
3. • Connect an oscilloscope to TP201
*Adjust VL201 so that magenta part (Dr and Db) becomes the same level as shown.



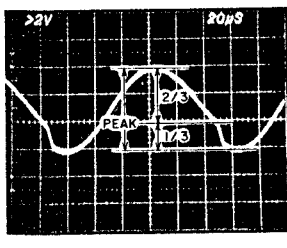
7 BELL FILTER

1. "REC", SECAM color bar signal
2. TP202 & VL202 (BELL FILTER)
3. • Connect an oscilloscope to TP202 (4.28M EQ)
*Adjust VL202 so that waveform becomes flat as shown.



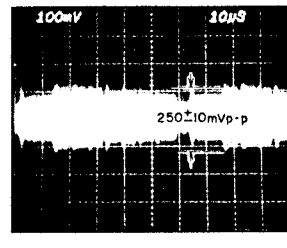
10 P/S AUTO PB SENSITIVITY

1. "REC" → "PB", SECAM color bar signal
2. TP 203 (PB P/S SENS) & VL 203 (PB P/S SENS)
3. • Set the VCR's color system mode to SECAM.
• Connect an oscilloscope to TP 203.
• Make some recording on the tape then play it back.
*Adjust the VL 203 so that distorted point of the waveform become 1/3 from the bottom as shown.



3 VIDEO REC CHROMA CURRENT (SECAM) (X450, X470 ONLY)

1. "REC"(LP mode), SECAM color bar signal
2. C 100 (REC-I), VIDEO OUT & VR 201 (REC-CHROMA)
3. • Set the VCR's color system mode to SECAM.
• Connect an oscilloscope's CH-1 to C 100, CH-2 to VIDEO OUT for triggering and ground to PRE AMP PCB.
• Turn the VR 1 (REC-Y : on the PRE AMP PCB) fully counter-clockwise.
*Adjust VR 201 (REC-CHROMA) so that the chroma REC current becomes 250 ± 10 mVp-p as shown.



5-3. SKEW JUMP CIRCUIT

Precautionary items prior to adjustments

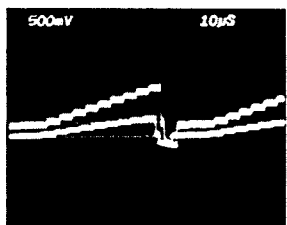
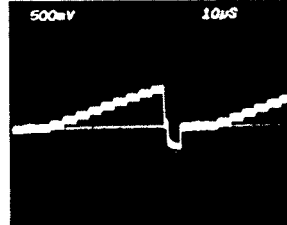
1. The color bar generator output should be 1.0 Vp-p.
2. The video output terminal should be terminated with 75 ohms (connect dummy load or 75 ohms input TV.)
3. Set the VCR's color system mode to NTSC 4.43

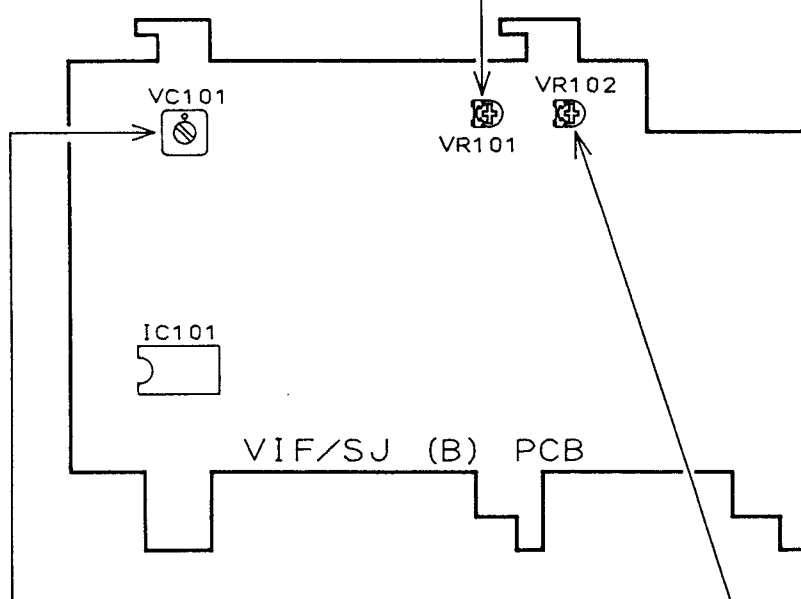
Required following test tapes.

Test tape	Parts No.
TF-540RFS	AT-751363
TF-542CBS	AT-751365

STEP	ADJUSTMENT ITEM
1.	MODE and INPUT SIGNAL/TEST TAPE
2.	TEST POINT and ADJ part
3.	REMARKS (•) & RESULT (*)

ADJ. part →

1	SKEW JUMP Y LEVEL	
1. "PB" → "STILL", test tape TF-540 RFS 2. VIDEO OUT & VR 101 (SKEW JUMP-Y) 3. • Connect an oscilloscope to VIDEO OUT. • Disconnect the connector P2 on the PRE AMP PCB. *Adjust VR 101 so that the separated stair step waveforms merge together.		 INCORRECT  CORRECT



3	SKEW JUMP f0 LEVEL
1. "PB" → "STILL", test tape TF-542 CBS 2. TV monitor screen & VC 101 (SKEW JUMP-f0) 3. • Disconnect the connector P2 on the PRE AMP PCB. *Adjust VC 101 so that beat noise on the still picture becomes minimum.	

2	SKEW JUMP CHROMA LEVEL
1. "PB" → "STILL", test tape TF-542 CBS 2. TV monitor screen & VR 102 (SKEW JUMP-C) 3. • Disconnect the connector P2 on the PRE AMP PCB. *Adjust VR 102 so that still picture flicker becomes minimum.	

VI. PARTS LIST

ATTENTION

1. When placing an order for parts, be sure to list Part No., Model No. and the description of each part. Otherwise, the non-delivery of the part or the delivery of a wrong part may result.
2. Please make sure that Part No. is correct when ordering. If not, a part different from the one you ordered may be delivered.
3. Since the parts shown in Parts List of Preliminary Service Manual may have been the subject of changes, please use this Parts List for all future reference.

HOW TO USE THIS PARTS LIST

1. This Parts List lists those parts which are considered necessary for repairs. Other common parts, such as resistors and capacitors, are listed in the "Common List for Service Parts" from which these parts should be selected and stocked.
2. The Recommended Spare Parts List shows those parts in the Parts List which are considered particularly important for service.
3. Parts not shown in the Parts List and "Common List for Service Parts" will not in principle be supplied.
4. How to read the Parts List.

a) Mechanism Block

2. HEAD BASE BLOCK

Ref.No.	Part No.	Description
1	BH-T2023A320A	HEAD BASE BLOCK
2	HP-H2206A010A	HEAD R/P PR4-8FU C
3	ZS-477876	PAN20×03STL CMT
4	ZS-536488	BID20×08STL CMT
5	ZG-402895	SP CS ANGLE ADJUST

SP (Service Parts) Classification

This number corresponds with the individual parts index number in that figure.

b) PC Board

6. MAIN PC BOARD

Ref.No.	Part No.	Description
IC1	EI-324536	IC HD14049BP
IC2	EI-336801	IC MB8841-564M
C1A	EC-338399	C MMY V 223M 250AC [U.E.B.S]
C1B	EC-350949	C MMY V 223M 250DC [J]
C1C	EC-338397	C MMY V 223M 125AC [C.A]
X1	EI-318384	OSC X'TAL NC-18C

Symbols for primary destination

[A]: AAL (U.S.A) [S]: SAA (Australia)
[B]: BEAB (England) [U]: U/T (Universal Area)
[C]: CSA (Canada)
[E]: CEE (Europe) [V]: VDE (W. Germany)
[J]: JPN (Japan) [Y]: Custom Version

SP (Service Parts) Classification

These reference symbols correspond with component symbols in the Schematic Diagrams.

The available PC Board Blocks are listed separately.

WARNING

△ (*) INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS.

AVERTISSEMENT

△ (*) IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

1.RECOMMENDED SPARE PARTS

We suggest you to stock the following Recommended Spare Part items listed below since they can cover most of the routine service.

Ref.No.	Part No.	Description
1	AV-B1012B010A	REMOCON BLK RC-V10A-EB
2	BB-V1102A020H	MECHA DECK BLK X450EGN
3	BL-V1102A140A	ARM LOADING BLK 425EA
4	BL-V1102A160A	ARM PINCH ROLLER(2)BLK 425EA
5	BL-387458J2	CAPSTAN BRAKE PART
6	BL-V1102A050A	TENSION ARM BLK 425EA
7	BM-400682J	MOTOR DFX-67B3VWB1
8	BM-394844J	MOTOR E20 EL82
9	BM-387503J	MOTOR PART
10	*BT-394846J1	TRANS POW V1114EGN
11	BV-V1102A150A	CASSETTE LOAD BLK 425EA
12	BV-V1102A070A	LEADER S BLK 425EA
13	BV-V1102A080A	LEADER T BLK 425EA
14	BV-V1123A410B	LOWER DRUM BLK X450EGN [X450EGN/X470EGN]
15	BV-V1123A410A	LOWER DRUM BLK X400EGN [X400EGN]
16	BV-389624J	RF CONVERTER MDLH3E143A EGN
17	BV-V1123A420B	UPPER DRUM BLK X450EGN [X450EGN/X470EGN]
18	BV-V1123A420A	UPPER DRUM BLK X400EGN [X400EGN]
19	EC-391843J	C DOUBLE FYDOH 223Z 5.5DC
20	ED-390011J	D LED GL451 INFRARED [D1]
21	ED-390012J	D LED GL4800 INFRARED [D2][D3]
22	ED-400680J	D LED SLR33MC70F80 GREEN T05
23	ED-394618J	D LED SLR34MC70F165 GREEN T05 [X450EGN/X470EGN]
24	ED-394836J	D LED SLR40VC70F165 RED T05
25	ED-394617J	D LED SLR54MG70F150 GREEN T05
26	ED-390686J	D LED TLN105B INFRARED
27	ED-386226J	D SCHOTTKY RB100AT-32T26 40/1
28	ED-400751J	D SILICON DAP209S T05 DOUBLE
29	*ED-357037	D SILICON DBA30B 100/ 3.0A
30	*ED-385935J	D SILICON ERA22-04V3 T26 400/5
31	ED-307572	D SILICON H 1SS131
32	ED-366684	D SILICON H 1SS136 F05
33	ED-624903	D SILICON H 1S2473
34	*ED-511907	D SILICON 1N4002 100/1.0A
35	*ED-397189J	D SILICON 1N4005 F10 600/1.0A
36	ED-389840J	D SILICON 1SR139-100HS F10
37	ED-381585J	D ZENER H HZS11B1J F05
38	ED-391103J	D ZENER H HZS12B2
39	ED-390415J	D ZENER H HZS2A3 T26
40	ED-388387J	D ZENER H HZS30-2L T26
41	ED-388359J	D ZENER H HZS4B2
42	ED-386090J	D ZENER H HZS5.1B3S F05
43	ED-389688J	D ZENER H HZS5B2
44	ED-387919J	D ZENER H HZS6A1L F05
45	ED-387763J	D ZENER H HZS7B3L F05
46	ED-388368J	D ZENER H HZS9B3L F05
47	ED-387765J	D ZENER H HZS9C1L F05
48	ED-346526	D ZENER H HZ6B1L
49	ED-307752	D ZENER H HZ6B2L
50	EE-389625J	TV TUNER TERE1-061A EGN
51	*EF-601942	FUSE SEMKO T 250V 630MA
52	EH-394838J	DL ADL-FN1344Q
53	EH-370413	DL ADL-FN2135Q-B03
54	EH-390730J	DL EFD-JF124A13J
55	EH-394872J	FILTER CE CDA6.0MD10
56	EH-394875J	FILTER CE SAF32.4MB50P
57	EH-394874J	FILTER CE SAF38.9MZA70Z
58	EH-366894	FILTER CE SFE-4.16MB 4.16MHZ
59	EH-370812	FILTER CE SFE4.5MB
60	EH-373920	FILTER CE SFE5.5MB
61	EH-373921	FILTER CE SFE6.0MB
62	EH-358973	FILTER CE SFE6.5MB 6.500MC
63	EH-363276	FILTER CE TPS4.5MB2
64	EH-368948	FILTER CE TPSS.5MW 5.5000MHZ
65	EH-394871J	FILTER CE TPW01B 6.000MHZ
66	EH-378927J	FILTER LC BP BPF-K5-MS(5969)
67	EH-367043	FILTER LC BP H289BNKN-7235LHD

Ref.No.	Part No.	Description
68	EH-389200J	FILTER LC BP SBP-4425-107M
69	EH-364045	FILTER LC FF-78P
70	EH-364066	FILTER LC LP H322LWQ-1166MAD
71	EH-368821	FILTER LC LP MYV-23R
72	EH-394860J	FILTER LC LP SAB-4180
73	EH-368896	FILTER LC MYV-24L
74	EH-395095J	FILTER LC SPL SFB-4398
75	EI-389467J	IC AN3247NK
76	*EI-376794J1	IC BA10393
77	EI-373981J1	IC BA10393N
78	EI-373980	IC BA15218N
79	EI-389644J	IC BA403
80	EI-381575J	IC BA6121
81	EI-353421	IC BA6229
82	EI-366892	IC BA7025L
83	*EI-368152	IC BA707
84	EI-372243	IC BA7107S
85	EI-387586J	IC BA7244BS
86	EI-387598J	IC BA7252S
87	EI-394853J	IC BA7611N
88	EI-394854J	IC BA7767AS
89	EI-356457	IC BU4013B
90	EI-360586	IC LA6358S
91	EI-394839J	IC LA7332
92	EI-389645J	IC LA7710
93	EI-388885J	IC LVA519S-2
94	EI-394861J	IC LVA521S-2
95	EI-396341J	IC LVA522S-2
96	EI-389622J	IC L5631
97	EI-400758J	IC MN67520 SX2SYP4 XAS3
98	EI-396633J	IC MSM6989RS
99	EI-393756J	IC MSM7400RS
100	EI-393757J	IC MSM7401RS
101	EI-388996J	IC M50455-142SP
102	EI-393324J	IC M5218AL
103	EI-373955	IC S-8053ALR
104	EI-310036	IC TC4066BP
105	EI-384806J	IC TC74HC4053AP
106	EI-394868J	IC UPC1820CA
107	EI-376112	IC UPD6122G
108	EI-394834J	IC UPD75216ACW SXEGNOP1-A80
109	EI-394467J	IC X24C01P
110	EI-394869J	OSC CE CSA1.481MK901
111	EI-394870J	OSC CE CSB500F23 504.5KHZ
112	EI-368829	OSC CE CSB512P
113	EI-373957J1	OSC CE CST4.19MGW 4.194MHZ
114	EI-390687J	OSC CE CSU455PL 455KHZ
115	EI-389640J	OSC XTAL HC-49/U 8000KHZ
116	EI-368825	OSC XTAL MX-38T 32.768KHZ
117	EI-370418	OSC XTAL NR-18 10.000MHZ
118	EI-381632J	OSC XTAL(86686) 4.433619MHZ
119	EI-381661J	OSC XTAL(86898) 3.579545MHZ
120	EM-387624J	IND FL FV345G CHARACTER
121	EO-375471	COIL OSC 1 S033344
122	EO-388362J	COIL OSC 1 V1102
123	EO-366893	COIL VARI 1 21D6 8.20MH
124	*EQ-389298J	RELAY POW AJV12442 1NO 100V
125	*ER-367642	R FUSE H S10 ERD2FC 1/4W 1200G
126	*ER-393219J	R FUSE H S10 RF25S 1/4W 4R7J
127	*ER-400688J	R FUSE V T05 RF25SCVTP1/4WR10K
128	*ER-400728J	R FUSE V T05 RF25SCVTP1/4WR12K
129	*ER-400689J	R FUSE V T05 RF25SCVTP1/4WR68K
130	ES-373099	SW LEAF MTS10110MPC1
131	ES-387465J	SW MODE SELECT MMS00070ZLBO
132	ES-390156J1	SW SLIDE SSSS91690B 1-01-02N [SPEED,X450EGN/X470EGN] SW TACT SKHHAM004A [RESET]
133	ES-349474	DETECTOR GPIU501
134	ET-390397J	TR DTA114ES
135	ET-356336	TR DTA143ES
136	ET-360646	TR DTA143XS
137	ET-370634	TR DTA144ES
138	ET-354415	TR DTA144TS
139	ET-373985	TR DTC114ES
140	ET-353897	TR DTC114TS
141	ET-360399	TR DTC114WS
142	ET-394881J	TR DTC143ES
143	ET-364060	TR DTC143TS
144	ET-354364	TR DTC144ES
145	ET-354414	TR DTC144TS
146	ET-370310	TR DTC144WS
147	ET-354094	

Ref.No.	Part No.	Description
148	ET-361490	TR PHOTO PN268 R,S [PTR1]
149	ET-390010J	TR PHOTO PT4800 [PTR2][PTR3]
150	ET-390009J	TR PHOTO PT493F [PTR4]
151	ET-364064	TR UN4119
152	ET-353899	TR 2SA1317 S,T,U
153	ET-395084J	TR 2SB1331 R T05
154	ET-388338J	TR 2SB1425 S,E
155	ET-321644	TR 2SC1213 C
156	ET-375777	TR 2SC2926S P,Q
157	*ET-389415J	TR 2SC3169
158	ET-397160J	TR 2SC3330 R,S,T,U,V
159	ET-366168	TR 2SD1292 Q,R
160	ET-360695	TR 2SD1302 S,T
161	ET-380685J	TR 2SD1761 E,F,G
162	EX-359254	THERMISTOR ERT-D2ZHL153S
163	HE-361456	HEAD E HVMFMD0015B
164	HR-390015J	HEAD COMBO HVMZA1045C
165	MB-387289J	BELT CAPSTAN
166	MI-387294J	IDLER PART
167	ML-391745J2	ARM DAMPER
168	ML-387350J1	ARM LID OFENER
169	ML-387423J	ARM LOADING BRAKE
170	ML-387277J3	ARM REVIEW PART
171	ML-387402J	LEVER TRIGGER
172	ML-387316J	MAIN BRAKE(S) PART
173	ML-387318J	MAIN BRAKE(T) PART
174	ML-387321J	REVIEW BRAKE PART
175	ML-387324J	SLIDER BRAKE PART
176	ML-387327J	SLIDER TRIGGER
177	MR-387406J	HOLDER THRUST WORM
178	MR-391968J	PULLEY TRIGGER(2)
179	MR-387286J1	ROLLER IMPEDANCE
180	MT-390954J1	DISK (2)PART
181	MZ-387298J2	DISK CLUTCH PART
182	MZ-387331J	GEAR CAM SLIDER
183	MZ-387335J	GEAR EJECT
184	MZ-387333J	GEAR FRONT LOADING
185	MZ-V1102A090A	GEAR TOGGLE (S) BLK 425EA
186	MZ-V1102A100A	GEAR TOGGLE (T) BLK 425EA
187	MZ-387330J	GEAR WORM PART
188	MZ-387332J	GEAR WORM WHEEL

HEAD DRUM BLOCK

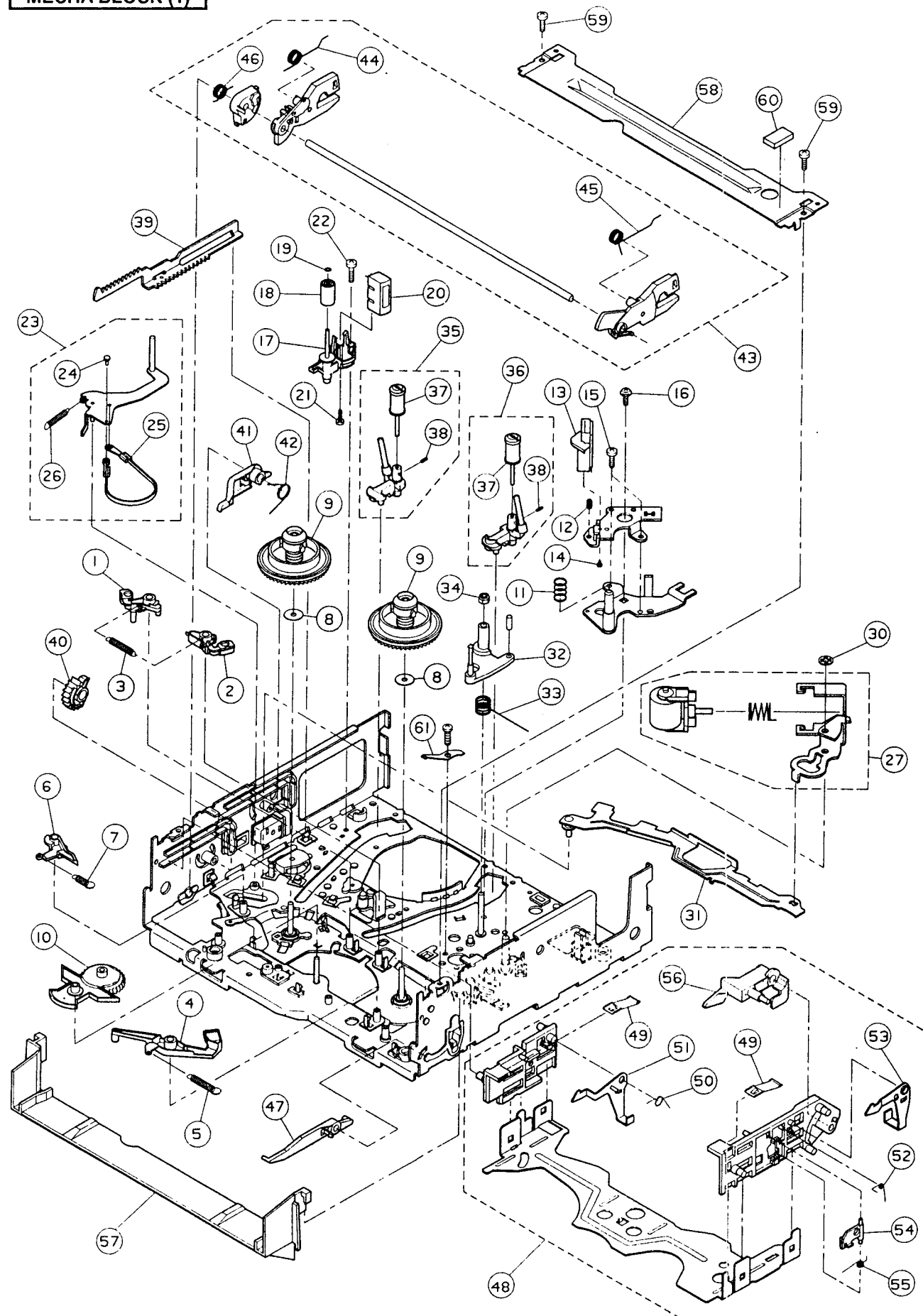
This exploded view diagram illustrates the assembly of a mechanical component, likely a motor or actuator. The parts are numbered as follows:

- 1**: Main cylindrical housing or motor body.
- 2**: Top circular flange or cover plate.
- 3**: Two screws used to secure the top flange.
- 4**: A small rectangular component, possibly a switch or sensor.
- 5**: A screw for mounting the rectangular component.
- 6**: A complex mounting bracket or base plate.
- 7**: Four screws for securing the mounting bracket.
- 8**: A circular plate or disc mounted on the bracket.
- 9**: Three screws for securing the circular plate.
- 10**: A circular component, possibly a lens or a cap, mounted on the plate.
- 11**: Two screws for securing the circular component.
- 12**: A screw for securing a side component of the bracket.
- 20**: A long, thin rectangular component, possibly a lever or a sensor arm.
- 21**: A screw for securing the long component.

Dashed lines indicate the assembly path and alignment of the components.

Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

MECHA BLOCK (1)



3. MECHA BLOCK (1)

Ref.No.	Part No.	Description
1	ML-387316J	MAIN BRAKE(S) PART
2	ML-387318J	MAIN BRAKE(T) PART
3	ZG-387320J	SP PULL MAIN BRAKE
4	ML-387321J	REVIEW BRAKE PART
5	ZG-387323J	SP PULL REVIEW BRAKE
6	ML-387423J	ARM LOADING BRAKE
7	ZG-387467J	SP PULL LOADING BRAKE
8	ZW-389814J	PW31X110X050PSL
9	MT-390954J1	DISK (2)PART
10	MI-387294J	IDLER PART
11	ZG-387438J	SP PUSH A/C
12	ZG-373900	6SET30X080SCM PKR CP
13	HR-390015J	HEAD COMBO HVMZA1045C
14	ZS-373899	PAN20X2.5STL BDY PS1
15	ZS-321298	BID30X08STL CMT
16	ZS-389853J	DT BID30XC6STL CMT C080
17	MZ-387495J3	HOLDER FE HEAD PART
18	MR-387286J1	ROLLER IMPEDANCE
19	ZW-374445	SLIT W17X032X025PSL
20	HE-361456	HEAD E HVFMD0015B
21	ZS-460438	BID20X03STL CMT
22	ZS-370047	DT BID30X12STL CMT
23	BL-V1102A050A	TENSION ARM BLK 425EA
24	SZ-387263J1	HOLDER LEVER TENSION
25	ML-390768J	TENSION BAND PART
26	ZG-387272J	SP PULL TENSION
27	BL-V1102A160A	ARM PINCH ROLLER(2)BLK 425EA
30	ZW-332843	RETAINING RING GRIP 380STL ACP
31	ML-387431J	SLIDER PINCH PART
32	ML-387277J3	ARM REVIEW PART
33	ZG-387282J	SP TORSION REVIEW
34	ZW-350839	N30 NYLON
35	BV-V1102A070A	LEADER S BLK 425EA
36	BV-V1102A080A	LEADER T BLK 425EA
37	VT-387394J1	GUIDE ROLLER D8 PART
38	ZS-374458	6SET20X030SCM PKR FP
39	ML-387428J	SLIDER FRONT LOADING
40	MZ-387335J	GEAR EJECT
41	ML-391745J2	ARM DAMPER
42	ZG-395567J	SP TORSION ARM DAMPER
43	BL-V1102A140A	ARM LOADING BLK 425EA
44	ZG-387417J	SP TORSION LOAD(S)
45	ZG-387418J	SP TORSION LOAD(T)
46	ZG-392831J	SP TORSION JOINT(2)
47	ML-387350J1	ARM LID OPENER
48	BV-V1102A150A	CASSETTE LOAD BLK 425EA
49	ZG-387348J1	SP PLATE HOLDER
50	ZG-387421J	SP TORSION DAMPER(S)
51	ML-387345J	LEVER DAMPER(S)
52	ZG-388290J1	SP TORSION DAMPER(T)
53	ML-387346J	LEVER DAMPER(T)
54	ML-387344J	LEVER LOCK RELEASE
55	ZG-387420J	SP TORSION RELEASE
56	ML-387349J1	ARM SHUTTER
57	SE-395554J	GUIDE FRONT(2)
58	MZ-387351J1	PLATE UPPER
59	ZS-364543	DT BID30X06STL CMT
60	SZ-391866J1	CUSHION COVER
61	ZG-392294J	SP PLATE EARTH
62	BB-V1102A020H	MECHA DECK BLK X450EGN

NOTE:

Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

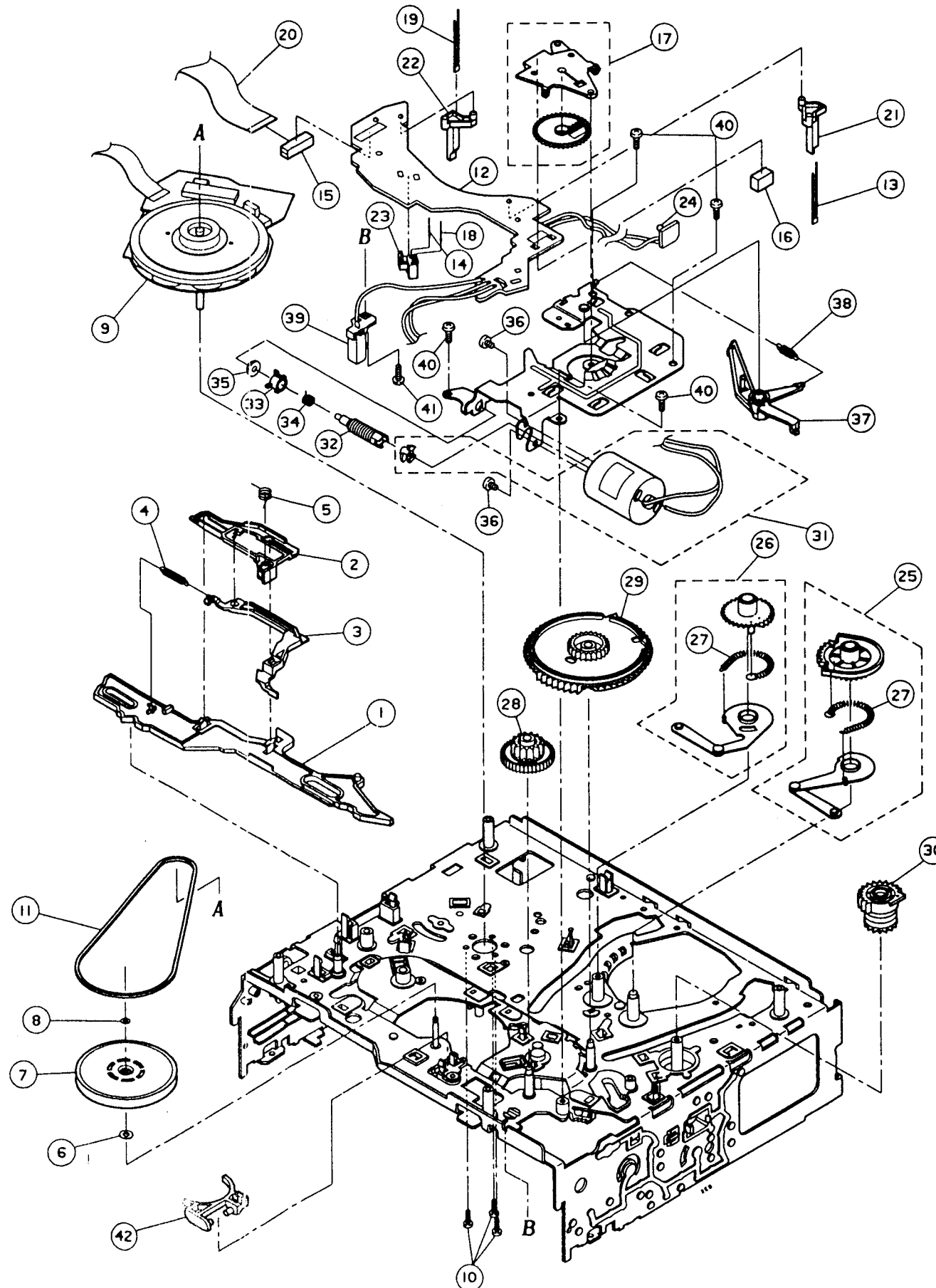
4. MECHA BLOCK (2)

MECHA BLOCK (2)

Ref.No.	Part No.	Description
1	ML-387324J	SLIDER BRAKE PART
2	ML-387327J	SLIDER TRIGGER
3	ML-387402J	LEVER TRIGGER
4	ZG-387468J	SF PULL SLIDER
5	ZG-387403J	SP TORSION COUPLING
6	ZW-389923J	PW26X060X050PSL
7	MZ-387298J2	DISK CLUTCH PART
8	ZW-387492J	SLIT W21X040X050PSL
9	BM-400682J	MOTOR DFX-67B3VWB1
10	ZS-365149	PT BID26X06STL CMT
11	MB-387289J	BELT CAPSTAN
12	EA-387496J	PC(#)SENSOR
13	ED-390011J	D LED GL451 INFRARED [D1]
14	ED-390012J	D LED GL4800 INFRARED [D2][D3]
15	EJ-387497J	SOCKET HOUSING 5062-30-10-13
16	EJ-381837J	SOCKET 174074-5 5P
17	ES-387465J	SW MODE SELECT MMS00070ZLBO
18	ET-390010J	TR PHOTO PT4800 [PTR2][PTR3]
19	ET-390009J	TR PHOTO PT493F [PTR4]
20	EW-389313J	CORD FFC P1.25 L=120 13P
21	MZ-387430J	HOLDER D-LED
22	MZ-387445J	HOLDER S SENSOR
23	MZ-387446J	HOLDER PHOTO SENSOR
24	ET-361490	TR PHOTO PN268 R,S [PTR1]
25	MZ-V1102A090A	GEAR TOGGLE (S) BLK 425EA
26	MZ-V1102A100A	GEAR TOGGLE (T) BLK 425EA
27	ZG-387413J1	SP PULL TOGGLE
28	MZ-387332J	GEAR WORM WHEEL
29	MZ-387331J	GEAR CAM SLIDER
30	MZ-387333J	GEAR FRONT LOADING
31	BM-387503J	MOTOR PART
32	MZ-387330J	GEAR WORM PART
33	MR-391968J	PULLEY TRIGGER (2)
34	ZG-387443J	SP TRIGGER
35	MR-387406J	HOLDER THRUST WORM
36	ZS-425981	BID30X03STL CMT
37	BL-387458J2	CAPSTAN BRAKE PART
38	ZG-387502J	SP PULL CAPSTAN BRAKE
39	ES-373099	SW LEAF MTS10110MPC1
40	ZS-389950J	PT BID26X10STL CMT
41	ZS-364543	DT BID30X06STL CMT
42	ML-387311J1	ARM COUPLING

NOTE:

Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.



5. P.C BOARD BLOCK

Ref.No.	Part No.	Description
1A	BA-V1114A600C	PC(#) MAIN(EGN) BLK X400EGN
1B	BA-V1114A600A	PC(#) MAIN(EGN) BLK X450EGN
1C	BA-V1114A600B	PC(#) MAIN(EGN) BLK X470EGN
2	BA-V1114A500A	PC(#) POWER BLK X450EGN
3A	BA-V1114A630C	PC OPERATION BLK X400EGN
3B	BA-V1114A630A	PC OPERATION BLK X450EGN
3C	BA-V1114A630B	PC OPERATION BLK X470EGN
4A	BA-V1114A620A	PC PRE AMP400 BLK X400EGN [X400EGN]
4B	BA-V1114A610A	PC PRE AMP450 BLK X450EGN [X450EGN/X470EGN]
5A	BA-V1114A680B	PC CHROMA EGN BLK X400EGN
5B	BA-V1114A680A	PC CHROMA EGN BLK X450EGN
5C	BA-V1114A680C	PC CHROMA EGN BLK X470EGN
6	BA-V1114A690A	PC(#) VIF/SJ BLK X470EGN

PC (#) MAIN BLK CONSISTS OF FOLLOWING P.C BOARD.

- MAIN P.C BOARD
- VIDEO P.C BOARD
- VIF UNIT (X400EGN/X450EGN)

PC (#) POWER BLK CONSISTS OF FOLLOWING P.C BOARD.

- POWER SUPPLY (A) P.C BOARD
- POWER SUPPLY (B) P.C BOARD
- POWER SUPPLY (C) P.C BOARD
- POWER SUPPLY (D) P.C BOARD

PC (#) VIF/SJ BLK CONSISTS OF FOLLOWING P.C BOARD.

- VIF/SJ P.C BOARD
- VIF/SJ (B) P.C BOARD

6. MAIN P.C BOARD (X400EGN)

Ref.No.	Part No.	Description
C509	EC-391843J	C DOUBLE FYDOH 223Z 5.5DC
D1	ED-307572	D SILICON H 1SS131
D2	ED-307572	D SILICON H 1SS131
D3	ED-307572	D SILICON H 1SS131
D4	ED-307572	D SILICON H 1SS131
D5	ED-307572	D SILICON H 1SS131
D6	ED-307572	D SILICON H 1SS131
D7	ED-307572	D SILICON H 1SS131
D8	ED-307572	D SILICON H 1SS131
D12	ED-387919J	D ZENER H HZS6A1L F05
D101	ED-307572	D SILICON H 1SS131
D104	ED-307572	D SILICON H 1SS131
D105	ED-307572	D SILICON H 1SS131
D106	ED-307572	D SILICON H 1SS131
D107	ED-307572	D SILICON H 1SS131
D108	ED-307572	D SILICON H 1SS131
D203	ED-386090J	D ZENER H HZS5.1B3S F05
D204	ED-307572	D SILICON H 1SS131
D206	ED-389840J	D SILICON 1SR139-100HS F10
D207	ED-388359J	D ZENER H HZS4B2
D211	ED-307572	D SILICON H 1SS131
D212	ED-307572	D SILICON H 1SS131
D213	ED-346526	D ZENER H HZ6B1L
D301	ED-307572	D SILICON H 1SS131
D302	ED-307572	D SILICON H 1SS131
D303	ED-307572	D SILICON H 1SS131
D305	ED-390415J	D ZENER H HZS2A3 T26
D401	ED-307572	D SILICON H 1SS131
D402	ED-307572	D SILICON H 1SS131
D403	ED-624903	D SILICON H 1S2473
D405	ED-307572	D SILICON H 1SS131
D406	ED-307572	D SILICON H 1SS131
D407	ED-307572	D SILICON H 1SS131
D408	ED-307572	D SILICON H 1SS131
D409	ED-307572	D SILICON H 1SS131
D410	ED-307572	D SILICON H 1SS131
D412	ED-400751J	D SILICON DAP209S T05 DOUBLE
D413	ED-387763J	D ZENER H HZS7B3L F05
D414	ED-388368J	D ZENER H HZS9B3L F05
D415	ED-307572	D SILICON H 1SS131

Ref.No.	Part No.	Description
D416	ED-307572	D SILICON H 1SS131
D417	ED-307572	D SILICON H 1SS131
D418	ED-307572	D SILICON H 1SS131
D419	ED-389688J	D ZENER H HZS5B2
D420	ED-366684	D SILICON H 1SS136 F05
D421	ED-366684	D SILICON H 1SS136 F05
D422	ED-307572	D SILICON H 1SS131
D423	ED-388387J	D ZENER H HZS30-2L T26
D424	ED-307572	D SILICON H 1SS131
D425	ED-307572	D SILICON H 1SS131
D426	ED-307572	D SILICON H 1SS131
D427	ED-307572	D SILICON H 1SS131
D430	ED-307572	D SILICON H 1SS131
FL301	EO-388362J	COIL OSC 1 V1102
FR498	*ER-393219J	R FUSE H S10 RF25S 1/4W 4R7J
IC1	EI-389622J	IC L5631
IC101	EI-310036	IC TC4066BP
IC102	EI-388996J	IC M50455-142SP
IC104	EI-394853J	IC BA7611N
IC201	EI-393324J	IC M5218AL
IC301	EI-394854J	IC BA7677AS
IC401	EI-400758J	IC MN67520 SX2SYP4 XAS3
IC404	EI-353421	IC BA6229
IC405	EI-373980	IC BA15218N
IC406	EI-360586	IC LA6358S
L1	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L2	EO-351866	COIL FIX 1 LAP02 F05 330K
L102	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L103	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L104	EO-387782J	COIL FIX 1 EL0405SKI 2R2K
L105	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L106	EO-351866	COIL FIX 1 LAP02 F05 330K
L107	EO-351866	COIL FIX 1 LAP02 F05 330K
L110	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L111	EO-381196J	COIL FIX 1 EL0405SKI 470K
L112	EO-351862	COIL FIX 1 LAP02 F05 100K
L113	EO-351868	COIL FIX 1 LAP02 F05 470K
L301	EO-390717J	COIL FIX 1 LHL06TB T05 103J
L302	EO-390716J	COIL FIX 1 LHL06TB T05 272J
L401	EO-381196J	COIL FIX 1 EL0405SKI 470K
L402	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L404	EO-391267J	COIL FIX 1 LHL06TB T05 182J
L405	EO-375471	COIL OSC 1 S033344
PJ101	EJ-387614J	PIN J T6353-ABCB YL BK 4P
R221	*ER-367642	R FUSE H S10 ERD2FC 1/4W 1200G
R455	ER-336756	R OMF H FS 1W R47J
TR1	ET-353899	TR 2SA1317 S.T.U
TR3	ET-397160J	TR 2SC3330 R.S.T.U.V
TR4	ET-353899	TR 2SA1317 S.T.U
TR5	ET-375777	TR 2SC2926S P.Q
TR6	ET-354414	TR DTC144ES
TR7	ET-354414	TR DTC144ES
TR8	ET-353899	TR 2SA1317 S.T.U
TR9	ET-353899	TR 2SA1317 S.T.U
TR10	ET-353899	TR 2SA1317 S.T.U
TR11	ET-353899	TR 2SA1317 S.T.U
TR12	ET-397160J	TR 2SC3330 R.S.T.U.V
TR13	ET-353897	TR DTC114ES
TR14	ET-353899	TR 2SA1317 S.T.U
TR15	ET-394881J	TR DTC114WS
TR16	ET-354414	TR DTC144ES
TR17	ET-354414	TR DTC144ES
TR18	ET-354414	TR DTC144ES
TR19	ET-356336	TR DTA114ES
TR20	ET-356336	TR DTA114ES
TR21	ET-356336	TR DTA114ES
TR22	ET-360646	TR DTA143ES
TR25	ET-397160J	TR 2SC3330 R.S.T.U.V
TR26	ET-397160J	TR 2SC3330 R.S.T.U.V
TR101	ET-353899	TR 2SA1317 S.T.U
TR102	ET-353897	TR DTC114ES
TR103	ET-353899	TR 2SA1317 S.T.U
TR104	ET-356336	TR DTA114ES
TR105	ET-354414	TR DTC144ES
TR106	ET-354414	TR DTC144ES
TR107	ET-397160J	TR 2SC3330 R.S.T.U.V
TR108	ET-354414	TR DTC144ES
TR109	ET-354414	TR DTC144ES
TR110	ET-397160J	TR 2SC3330 R.S.T.U.V
TR111	ET-353899	TR 2SA1317 S.T.U
TR112	ET-354414	TR DTC144ES
TR113	ET-353899	TR 2SA1317 S.T.U

Ref.No.	Part No.	Description
TR115	ET-397160J	TR 2SC3330 R,S,T,U,V
TR116	ET-397160J	TR 2SC3330 R,S,T,U,V
TR117	ET-397160J	TR 2SC3330 R,S,T,U,V
TR118	ET-397160J	TR 2SC3330 R,S,T,U,V
TR203	ET-388338J	TR 2SB1425 S,E
TR204	ET-354414	TR DTC144ES
TR205	ET-366168	TR 2SD1292 Q,R
TR206	ET-353899	TR 2SA1317 S,T,U
TR207	ET-397160J	TR 2SC3330 R,S,T,U,V
TR208	ET-388338J	TR 2SB1425 S,E
TR301	ET-397160J	TR 2SC3330 R,S,T,U,V
TR302	ET-354414	TR DTC144ES
TR303	ET-397160J	TR 2SC3330 R,S,T,U,V
TR402	ET-354415	TR DTA144ES
TR403	ET-354414	TR DTC144ES
TR404	ET-370634	TR DTA143XS
TR405	ET-370634	TR DTA143XS
TR407	ET-370634	TR DTA143XS
TR408	ET-370634	TR DTA143XS
TR409	ET-370634	TR DTA143XS
TR410	ET-370634	TR DTA143XS
TR411	ET-370634	TR DTA143XS
TR412	ET-354414	TR DTC144ES
TR413	ET-354414	TR DTC144ES
TR414	ET-388338J	TR 2SB1425 S,E
TR415	ET-397160J	TR 2SC3330 R,S,T,U,V
TR416	ET-353897	TR DTC114ES
TR417	ET-354094	TR DTC144WS
TR418	ET-354415	TR DTA144ES
TR419	ET-354414	TR DTC144ES
TR420	ET-397160J	TR 2SC3330 R,S,T,U,V
TR421	ET-373985	TR DTA144TS
TR422	ET-373985	TR DTA144TS
TR423	ET-373985	TR DTA144TS
TR424	ET-354414	TR DTC144ES
TR425	ET-366168	TR 2SD1292 Q,R
TR426	ET-397160J	TR 2SC3330 R,S,T,U,V
TR427	ET-354414	TR DTC144ES
VR101	EV-389480J	R S-FIX H T05EVNDXAA03 0.1W332
VR301	EV-389480J	R S-FIX H T05EVNDXAA03 0.1W332
VR302	EV-389481J	R S-FIX H T05EVNDXAA03 0.1W473
VR401	EV-397066J	R S-FIX H T05EVNDXAA03 0.1W333
WP407	EW-394786J	CORD FFC P1.25 L=80 12P
X401	EI-389640J	OSC XTAL HC-49/U 8000KHZ
1	SP-395325J	PANEL REAR JACK X400EGN
2	EE-389625J	TV TUNER TERE1-061A EGN
3	BV-389624J	RF CONVERTER MDLH3E143A EGN

7. MAIN P.C BOARD (X450EGN)

Ref.No.	Part No.	Description
C509	EC-391843J	C DOUBLE FYDOH 223Z 5.5DC
D1	ED-307572	D SILICON H 1SS131
D2	ED-307572	D SILICON H 1SS131
D3	ED-307572	D SILICON H 1SS131
D4	ED-307572	D SILICON H 1SS131
D5	ED-307572	D SILICON H 1SS131
D6	ED-307572	D SILICON H 1SS131
D7	ED-307572	D SILICON H 1SS131
D8	ED-307572	D SILICON H 1SS131
D12	ED-387919J	D ZENER H HZS6A1L F05
D101	ED-307572	D SILICON H 1SS131
D104	ED-307572	D SILICON H 1SS131
D105	ED-307572	D SILICON H 1SS131
D106	ED-307572	D SILICON H 1SS131
D107	ED-307572	D SILICON H 1SS131
D108	ED-307572	D SILICON H 1SS131
D203	ED-386090J	D ZENER H HZS5.1B3S F05
D204	ED-307572	D SILICON H 1SS131
D206	ED-389840J	D SILICON 1SR139-100HS F10
D207	ED-388359J	D ZENER H HZS4B2
D211	ED-307572	D SILICON H 1SS131
D212	ED-307572	D SILICON H 1SS131
D213	ED-346526	D ZENER H HZ6B1L
D301	ED-307572	D SILICON H 1SS131
D302	ED-307572	D SILICON H 1SS131
D303	ED-307572	D SILICON H 1SS131
D304	ED-307572	D SILICON H 1SS131
D305	ED-390415J	D ZENER H HZS2A3 T26

Ref.No.	Part No.	Description
D401	ED-307572	D SILICON H 1SS131
D402	ED-307572	D SILICON H 1SS131
D403	ED-624903	D SILICON H 1S2473
D404	ED-307572	D SILICON H 1SS131
D405	ED-307572	D SILICON H 1SS131
D406	ED-307572	D SILICON H 1SS131
D407	ED-307572	D SILICON H 1SS131
D408	ED-307572	D SILICON H 1SS131
D409	ED-307572	D SILICON H 1SS131
D410	ED-307572	D SILICON H 1SS131
D411	ED-307572	D SILICON H 1SS131
D412	ED-400751J	D SILICON DAP209S T05 DOUBLE
D413	ED-387763J	D ZENER H HZS7B3L F05
D414	ED-388368J	D ZENER H HZS9B3L F05
D415	ED-307572	D SILICON H 1SS131
D416	ED-307572	D SILICON H 1SS131
D417	ED-307572	D SILICON H 1SS131
D418	ED-307572	D SILICON H 1SS131
D419	ED-389688J	D ZENER H HZS5B2
D420	ED-366684	D SILICON H 1SS136 F05
D421	ED-366684	D SILICON H 1SS136 F05
D422	ED-307572	D SILICON H 1SS131
D423	ED-388387J	D ZENER H HZS30-2L T26
D424	ED-307572	D SILICON H 1SS131
D425	ED-307572	D SILICON H 1SS131
D426	ED-307572	D SILICON H 1SS131
D427	ED-307572	D SILICON H 1SS131
D430	ED-307572	D SILICON H 1SS131
FL301	EO-388362J	COIL OSC 1 V1102
FR498	*ER-393219J	R FUSE H S10 RF25S 1/4W 4R7J
IC1	EI-389622J	IC L5631
IC101	EI-310036	IC TC4066BP
IC102	EI-388996J	IC M50455-142SP
IC104	EI-394853J	IC BA7611N
IC201	EI-393324J	IC M5218AL
IC301	EI-394854J	IC BA7767AS
IC401	EI-400758J	IC MN67520 SX2SYP4 XAS3
IC404	EI-353421	IC BA6229
IC405	EI-373980	IC BA15218N
IC406	EI-360586	IC LA6358S
L1	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L2	EO-351866	COIL FIX 1 LAP02 F05 330K
L102	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L103	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L104	EO-387782J	COIL FIX 1 EL0405SKI 2R2K
L105	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L106	EO-351866	COIL FIX 1 LAP02 F05 330K
L107	EO-351866	COIL FIX 1 LAP02 F05 330K
L110	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L111	EO-381196J	COIL FIX 1 EL0405SKI 470K
L112	EO-351862	COIL FIX 1 LAP02 F05 100K
L113	EO-351868	COIL FIX 1 LAP02 F05 470K
L301	EO-390717J	COIL FIX 1 LHL06TB T05 103J
L302	EO-390716J	COIL FIX 1 LHL06TB T05 272J
L401	EO-381196J	COIL FIX 1 EL0405SKI 470K
L402	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L404	EO-391267J	COIL FIX 1 LHL06TB T05 182J
L405	EO-375471	COIL OSC 1 S033344
PJ101	EJ-387614J	PIN J T6353-ABCB YL BK 4P
R221	*ER-367642	R FUSE H S10 ERD2FC 1/4W 1200G
R455	ER-336756	R OMF H FS 1W R47J
TR1	ET-353899	TR 2SA1317 S,T,U
TR3	ET-397160J	TR 2SC3330 R,S,T,U,V
TR4	ET-353899	TR 2SA1317 S,T,U
TR5	ET-375777	TR 2SC2926S P,Q
TR6	ET-354414	TR DTC144ES
TR7	ET-354414	TR DTC144ES
TR8	ET-353899	TR 2SA1317 S,T,U
TR9	ET-353899	TR 2SA1317 S,T,U
TR10	ET-353899	TR 2SA1317 S,T,U
TR11	ET-353899	TR 2SA1317 S,T,U
TR12	ET-397160J	TR 2SC3330 R,S,T,U,V
TR13	ET-353897	TR DTC114ES
TR14	ET-353899	TR 2SA1317 S,T,U
TR15	ET-394881J	TR DTC114WS
TR16	ET-354414	TR DTC144ES
TR17	ET-354414	TR DTC144ES
TR18	ET-354414	TR DTC144ES
TR19	ET-356336	TR DTA114ES
TR20	ET-356336	TR DTA114ES
TR21	ET-356336	TR DTA114ES
TR22	ET-360646	TR DTA143ES

Ref.No.	Part No.	Description
TR25	ET-397160J	TR 2SC3330 R,S,T,U,V
TR26	ET-397160J	TR 2SC3330 R,S,T,U,V
TR101	ET-353899	TR 2SA1317 S,T,U
TR102	ET-353897	TR DTC114ES
TR103	ET-353899	TR 2SA1317 S,T,U
TR104	ET-356336	TR DTA114ES
TR105	ET-354414	TR DTC144ES
TR106	ET-354414	TR DTC144ES
TR107	ET-397160J	TR 2SC3330 R,S,T,U,V
TR108	ET-354414	TR DTC144ES
TR109	ET-354414	TR DTC144ES
TR110	ET-397160J	TR 2SC3330 R,S,T,U,V
TR111	ET-353899	TR 2SA1317 S,T,U
TR112	ET-354414	TR DTC144ES
TR113	ET-353899	TR 2SA1317 S,T,U
TR115	ET-397160J	TR 2SC3330 R,S,T,U,V
TR116	ET-397160J	TR 2SC3330 R,S,T,U,V
TR117	ET-397160J	TR 2SC3330 R,S,T,U,V
TR118	ET-397160J	TR 2SC3330 R,S,T,U,V
TR203	ET-388338J	TR 2SB1425 S,E
TR204	ET-354414	TR DTC144ES
TR205	ET-366168	TR 2SD1292 Q,R
TR206	ET-353899	TR 2SA1317 S,T,U
TR207	ET-397160J	TR 2SC3330 R,S,T,U,V
TR208	ET-388338J	TR 2SB1425 S,E
TR301	ET-397160J	TR 2SC3330 R,S,T,U,V
TR302	ET-354414	TR DTC144ES
TR303	ET-397160J	TR 2SC3330 R,S,T,U,V
TR401	ET-356336	TR DTA114ES
TR402	ET-354415	TR DTA144ES
TR403	ET-354414	TR DTC144ES
TR404	ET-370634	TR DTA143XS
TR405	ET-370634	TR DTA143XS
TR406	ET-370634	TR DTA143XS
TR407	ET-370634	TR DTA143XS
TR408	ET-370634	TR DTA143XS
TR409	ET-370634	TR DTA143XS
TR410	ET-370634	TR DTA143XS
TR411	ET-370634	TR DTA143XS
TR412	ET-354414	TR DTC144ES
TR413	ET-354414	TR DTC144ES
TR414	ET-388338J	TR 2SB1425 S,E
TR415	ET-397160J	TR 2SC3330 R,S,T,U,V
TR416	ET-353897	TR DTC114ES
TR417	ET-354094	TR DTC144WS
TR418	ET-354415	TR DTA144ES
TR419	ET-354414	TR DTC144ES
TR420	ET-397160J	TR 2SC3330 R,S,T,U,V
TR421	ET-373985	TR DTA144TS
TR422	ET-373985	TR DTA144TS
TR423	ET-373985	TR DTA144TS
TR424	ET-354414	TR DTC144ES
TR425	ET-366168	TR 2SD1292 Q,R
TR426	ET-397160J	TR 2SC3330 R,S,T,U,V
TR427	ET-354414	TR DTC144ES
TR431	ET-354414	TR DTC144ES
VR101	EV-389480J	R S-FIX H T05EVNDXAA03 0.1W332
VR301	EV-389480J	R S-FIX H T05EVNDXAA03 0.1W332
VR302	EV-389481J	R S-FIX H T05EVNDXAA03 0.1W473
VR401	EV-397066J	R S-FIX H T05EVNDXAA03 0.1W333
WP407	EW-394786J	CORD FFC P1.25 L=80 12P
X401	EI-389640J	OSC XTAL HC-49/U 8000KHZ
1	SP-395325J	PANEL REAR JACK X400EGN
2	EE-389625J	TV TUNER TERE1-061A EGN
3	BV-389624J	RF CONVERTER MDLH3E143A EGN

8. MAIN P.C BOARD (X470EGN)

Ref.No.	Part No.	Description
C509	EC-391843J	C DOUBLE FYDOH 223Z 5.5DC
D1	ED-307572	D SILICON H 1SS131
D2	ED-307572	D SILICON H 1SS131
D3	ED-307572	D SILICON H 1SS131
D4	ED-307572	D SILICON H 1SS131
D5	ED-307572	D SILICON H 1SS131
D6	ED-307572	D SILICON H 1SS131
D7	ED-307572	D SILICON H 1SS131
D8	ED-307572	D SILICON H 1SS131
D9	ED-307572	D SILICON H 1SS131
D10	ED-307572	D SILICON H 1SS131
D11	ED-307572	D SILICON H 1SS131
D12	ED-37919J	D ZENER H HZS6A1L F05
D101	ED-307572	D SILICON H 1SS131
D104	ED-307572	D SILICON H 1SS131
D105	ED-307572	D SILICON H 1SS131
D106	ED-307572	D SILICON H 1SS131
D107	ED-307572	D SILICON H 1SS131
D109	ED-307572	D SILICON H 1SS131
D110	ED-307572	D SILICON H 1SS131
D203	ED-386090J	D ZENER H HZS5.1B3S F05
D204	ED-307572	D SILICON H 1SS131
D206	ED-389840J	D SILICON 1SR139-100HS F10
D207	ED-388359J	D ZENER H HZS4B2
D211	ED-307572	D SILICON H 1SS131
D212	ED-307572	D SILICON H 1SS131
D213	ED-346526	D ZENER H HZ6B1L
D301	ED-307572	D SILICON H 1SS131
D302	ED-307572	D SILICON H 1SS131
D303	ED-307572	D SILICON H 1SS131
D304	ED-307572	D SILICON H 1SS131
D305	ED-390415J	D ZENER H HZS2A3 T26
D401	ED-307572	D SILICON H 1SS131
D402	ED-307572	D SILICON H 1SS131
D403	ED-624903	D SILICON H 1S2473
D404	ED-307572	D SILICON H 1SS131
D405	ED-307572	D SILICON H 1SS131
D406	ED-307572	D SILICON H 1SS131
D407	ED-307572	D SILICON H 1SS131
D408	ED-307572	D SILICON H 1SS131
D409	ED-307572	D SILICON H 1SS131
D410	ED-307572	D SILICON H 1SS131
D411	ED-307572	D SILICON H 1SS131
D412	ED-400751J	D SILICON DAP209S T05 DOUBLE
D413	ED-387763J	D ZENER H HZS7B3L F05
D414	ED-388368J	D ZENER H HZS9B3L F05
D415	ED-307572	D SILICON H 1SS131
D416	ED-307572	D SILICON H 1SS131
D417	ED-307572	D SILICON H 1SS131
D418	ED-307572	D SILICON H 1SS131
D419	ED-389688J	D ZENER H HZS5B2
D420	ED-366684	D SILICON H 1SS136 F05
D421	ED-366684	D SILICON H 1SS136 F05
D422	ED-307572	D SILICON H 1SS131
D423	ED-388387J	D ZENER H HZS30-2L T26
D424	ED-307572	D SILICON H 1SS131
D425	ED-307572	D SILICON H 1SS131
D426	ED-307572	D SILICON H 1SS131
D427	ED-307572	D SILICON H 1SS131
D428	ED-307572	D SILICON H 1SS131
D429	ED-307572	D SILICON H 1SS131
D430	ED-307572	D SILICON H 1SS131
FL301	EO-388362J	COIL OSC 1 V1102
FR498	*ER-393219J	R FUSE H S10 RF25S 1/4W 4R7J
IC1	EI-389622J	IC L5631
IC101	EI-310036	IC TC4066BP
IC102	EI-388996J	IC M50455-142SP
IC104	EI-394853J	IC BA7611N
IC201	EI-393324J	IC M5218AL
IC301	EI-394854J	IC BA7767AS
IC401	EI-400758J	IC MN67520 SX2SYP4 XA S3
IC404	EI-353421	IC BA6229
IC405	EI-373980	IC BA15218N
IC406	EI-360586	IC LA6358S
L1	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L102	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L103	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L104	EO-387782J	COIL FIX 1 EL0405SKI 2R2K
L105	EO-376179	COIL FIX 1 ALF-7.5F F05 101K

Ref.No.	Part No.	Description
L106	EO-351866	COIL FIX 1 LAP02 F05 330K
L107	EO-351866	COIL FIX 1 LAP02 F05 330K
L110	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L111	EO-381196J	COIL FIX 1 EL0405SKI 470K
L112	EO-351862	COIL FIX 1 LAP02 F05 100K
L113	EO-351868	COIL FIX 1 LAP02 F05 470K
L301	EO-390717J	COIL FIX 1 LHL06TB T05 103J
L302	EO-390716J	COIL FIX 1 LHL06TB T05 272J
L401	EO-381196J	COIL FIX 1 EL0405SKI 470K
L402	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L404	EO-391267J	COIL FIX 1 LHL06TB T05 182J
L405	EO-375471	COIL OSC 1 S033344
PJ1	EJ-394865J	PIN JACK T6358-AACA YLW.BL 2P
PJ101	EJ-387614J	PIN J T6353-ABCB YL BK 4P
R221	*ER-367642	R FUSE H S10 ERD2FC 1/4W 1200G
R455	ER-336756	R OMF H FS 1W R47J
TR1	ET-353899	TR 2SA1317 S,T,U
TR3	ET-397160J	TR 2SC3330 R,S,T,U,V
TR4	ET-353899	TR 2SA1317 S,T,U
TR5	ET-375777	TR 2SC2926S P,Q
TR6	ET-354414	TR DTC144ES
TR7	ET-354414	TR DTC144ES
TR8	ET-353899	TR 2SA1317 S,T,U
TR9	ET-353899	TR 2SA1317 S,T,U
TR10	ET-353899	TR 2SA1317 S,T,U
TR11	ET-353899	TR 2SA1317 S,T,U
TR12	ET-397160J	TR 2SC3330 R,S,T,U,V
TR13	ET-353897	TR DTC114ES
TR14	ET-353899	TR 2SA1317 S,T,U
TR15	ET-394881J	TR DTC114WS
TR16	ET-354414	TR DTC144ES
TR17	ET-354414	TR DTC144ES
TR18	ET-354414	TR DTC144ES
TR19	ET-356336	TR DTA114ES
TR20	ET-356336	TR DTA114ES
TR21	ET-356336	TR DTA114ES
TR22	ET-360646	TR DTA143ES
TR23	ET-354414	TR DTC144ES
TR24	ET-356336	TR DTA114ES
TR25	ET-397160J	TR 2SC3330 R,S,T,U,V
TR26	ET-397160J	TR 2SC3330 R,S,T,U,V
TR101	ET-353899	TR 2SA1317 S,T,U
TR102	ET-353897	TR DTC114ES
TR103	ET-353899	TR 2SA1317 S,T,U
TR104	ET-356336	TR DTA114ES
TR106	ET-354414	TR DTC144ES
TR107	ET-397160J	TR 2SC3330 R,S,T,U,V
TR108	ET-354414	TR DTC144ES
TR109	ET-354414	TR DTC144ES
TR110	ET-397160J	TR 2SC3330 R,S,T,U,V
TR111	ET-353899	TR 2SA1317 S,T,U
TR112	ET-354414	TR DTC144ES
TR113	ET-353899	TR 2SA1317 S,T,U
TR114	ET-353897	TR DTC114ES
TR115	ET-397160J	TR 2SC3330 R,S,T,U,V
TR116	ET-397160J	TR 2SC3330 R,S,T,U,V
TR117	ET-397160J	TR 2SC3330 R,S,T,U,V
TR118	ET-397160J	TR 2SC3330 R,S,T,U,V
TR203	ET-388338J	TR 2SB1425 S,E
TR204	ET-354414	TR DTC144ES
TR205	ET-366168	TR 2SD1292 Q,R
TR206	ET-353899	TR 2SA1317 S,T,U
TR207	ET-397160J	TR 2SC3330 R,S,T,U,V
TR208	ET-388338J	TR 2SB1425 S,E
TR301	ET-397160J	TR 2SC3330 R,S,T,U,V
TR302	ET-354414	TR DTC144ES
TR303	ET-397160J	TR 2SC3330 R,S,T,U,V
TR401	ET-356336	TR DTA114ES
TR402	ET-354415	TR DTA144ES
TR403	ET-354414	TR DTC144ES
TR404	ET-370634	TR DTA143XS
TR405	ET-370634	TR DTA143XS
TR406	ET-370634	TR DTA143XS
TR407	ET-370634	TR DTA143XS
TR408	ET-370634	TR DTA143XS
TR409	ET-370634	TR DTA143XS
TR410	ET-370634	TR DTA143XS
TR411	ET-370634	TR DTA143XS
TR412	ET-354414	TR DTC144ES
TR413	ET-354414	TR DTC144ES
TR414	ET-388338J	TR 2SB1425 S,E
TR415	ET-397160J	TR 2SC3330 R,S,T,U,V

Ref.No.	Part No.	Description
TR416	ET-353897	TR DTC114ES
TR417	ET-354094	TR DTC144WS
TR418	ET-354415	TR DTA144ES
TR419	ET-354414	TR DTC144ES
TR420	ET-397160J	TR 2SC3330 R,S,T,U,V
TR421	ET-373985	TR DTA144TS
TR422	ET-373985	TR DTA144TS
TR423	ET-373985	TR DTA144TS
TR424	ET-354414	TR DTC144ES
TR425	ET-366168	TR 2SD1292 Q,R
TR426	ET-397160J	TR 2SC3330 R,S,T,U,V
TR427	ET-354414	TR DTC144ES
TR429	ET-354415	TR DTA144ES
TR430	ET-354414	TR DTC144ES
TR431	ET-354414	TR DTC144ES
VR101	EV-389480J	R S-FIX H T05EVNDXAA03 0.1W332
VR301	EV-389480J	R S-FIX H T05EVNDXAA03 0.1W332
VR302	EV-389481J	R S-FIX H T05EVNDXAA03 0.1W473
VR401	EV-397066J	R S-FIX H T05EVNDXAA03 0.1W333
WP407	EW-394786J	CORD FFC P1.25 L=80 12P
X401	EI-389640J	OSC XTAL HC-49/U 8000KHZ
1	SP-395331J	PANEL REAR JACK X470EGN
2	EE-389625J	TV TUNER TERE1-061A EGN
3	BV-389624J	RF CONVERTER MDLH3E143AEGN

9. VIDEO P.C BOARD (X400EGN)

Ref.No.	Part No.	Description
D601	ED-307572	D SILICON H 1SS131
D604	ED-307572	D SILICON H 1SS131
D605	ED-307572	D SILICON H 1SS131
D606	ED-307572	D SILICON H 1SS131
FL601	EH-368821	FILTER LC LP MYV-23R
FL602	EH-368896	FILTER LC MYV-24L
FL603	EH-394860J	FILTER LC LP SAB-4180
IC601	EI-389467J	IC AN3247NK
IC602	EI-393757J	IC MSM7401RS
IC603	EI-393756J	IC MSM7400RS
IC604	EI-310036	IC TC4066BP
IC606	EI-388885J	IC LVA519S-2
L601	EO-387782J	COIL FIX 1 EL0405SKI 2R2K
L602	EO-387782J	COIL FIX 1 EL0405SKI 2R2K
L603	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L604	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L605	EO-357508	COIL FIX 1 LAP02 F05 151K
L606	EO-351862	COIL FIX 1 LAP02 F05 100K
L607	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L608	EO-360555	COIL FIX 1 LAP02 F05 180K
L609	EO-351868	COIL FIX 1 LAP02 F05 470K
TR601	ET-353899	TR 2SA1317 S,T,U
TR602	ET-353899	TR 2SA1317 S,T,U
TR604	ET-354415	TR DTA144ES
TR606	ET-397160J	TR 2SC3330 R,S,T,U,V
TR609	ET-354415	TR DTA144ES
TR610	ET-394881J	TR DTC114WS
VR601	EV-389476J	R S-FIX H T05EVNDXAA03 0.1W1 03
VR602	EV-389476J	R S-FIX H T05EVNDXAA03 0.1W1 03
VR603	EV-389479J	R S-FIX H T05EVNDXAA03 0.1W2 23
VR604	EV-389482J	R S-FIX H T05EVNDXAA03 0.1W6 82
VR605	EV-389489J	R S-FIX H T05EVNDXAA03 0.1W4 72
VR606	EV-389480J	R S-FIX H T05EVNDXAA03 0.1W3 32
VR607	EV-389478J	R S-FIX H T05EVNDXAA03 0.1W1 53
VR608	EV-389478J	R S-FIX H T05EVNDXAA03 0.1W1 53
VR609	EV-389489J	R S-FIX H T05EVNDXAA03 0.1W4 72

10. VIDEO P.C BOARD (X450EGN/X470EGN)

Ref.No.	Part No.	Description
D601	ED-307572	D SILICON H 1SS131
D602	ED-307572	D SILICON H 1SS131
D604	ED-307572	D SILICON H 1SS131
D605	ED-307572	D SILICON H 1SS131
D606	ED-307572	D SILICON H 1SS131
FL601	EH-368821	FILTER LC LP MYV-23R
FL602	EH-368896	FILTER LC MYV-24L
FL603	EH-394860J	FILTER LC LP SAB-4180
FL604	EH-364066	FILTER LC LP H322LWQ-1166MAD
IC601	EI-389467J	IC AN3247NK
IC602	EI-393757J	IC MSM7401RS
IC603	EI-393756J	IC MSM7400RS
IC604	EI-310036	IC TC4066BP
IC605	EI-394861J	IC LVA521S-2
IC606	EI-388885J	IC LVA519S-2
L601	EO-387782J	COIL FIX 1 EL0405SKI 2R2K
L602	EO-387782J	COIL FIX 1 EL0405SKI 2R2K
L603	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L604	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L605	EO-357508	COIL FIX 1 LAP02 F05 151K
L606	EO-351862	COIL FIX 1 LAP02 F05 100K
L607	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L608	EO-360555	COIL FIX 1 LAP02 F05 180K
L609	EO-351868	COIL FIX 1 LAP02 F05 470K
L610	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L611	EO-357507	COIL FIX 1 LAP02 F05 121K
L612	EO-357507	COIL FIX 1 LAP02 F05 121K
L613	EO-357508	COIL FIX 1 LAP02 F05 151K
TR601	ET-353899	TR 2SA1317 S,T,U
TR602	ET-353899	TR 2SA1317 S,T,U
TR603	ET-354415	TR DTA144ES
TR604	ET-354415	TR DTA144ES
TR605	ET-397160J	TR 2SC3330 R,S,T,U,V
TR606	ET-397160J	TR 2SC3330 R,S,T,U,V
TR607	ET-353899	TR 2SA1317 S,T,U
TR608	ET-353899	TR 2SA1317 S,T,U
TR609	ET-354415	TR DTA144ES
TR610	ET-394881J	TR DTC114WS
VR601	EV-389476J	R S-FIX H T05EVNDXAA03 0.1W103
VR602	EV-389476J	R S-FIX H T05EVNDXAA03 0.1W103
VR603	EV-389479J	R S-FIX H T05EVNDXAA03 0.1W223
VR604	EV-389482J	R S-FIX H T05EVNDXAA03 0.1W682
VR605	EV-389489J	R S-FIX H T05EVNDXAA03 0.1W472
VR606	EV-389480J	R S-FIX H T05EVNDXAA03 0.1W332
VR607	EV-389478J	R S-FIX H T05EVNDXAA03 0.1W153
VR608	EV-389478J	R S-FIX H T05EVNDXAA03 0.1W153
VR609	EV-389489J	R S-FIX H T05EVNDXAA03 0.1W472

11. VIF UNIT (X400EGN/X450EGN)

Ref.No.	Part No.	Description
CF1	EH-732531J	FILTER SAW F1807C
CF2	EH-394871J	FILTER CE TPW01B 6.000MHZ
CF3	EH-368948	FILTER CE TPS5.5MW 5.5000MHZ
CF4	EH-363276	FILTER CE TPS4.5MB2
CF5	EH-370812	FILTER CE SFE4.5MB
CF6	EH-373920	FILTER CE SFE5.5MB
CF7	EH-373921	FILTER CE SFE6.0MB
CF8	EH-358973	FILTER CE SFE6.5MB 6.500MC
CF9	EH-373921	FILTER CE SFE6.0MB
CF10	EH-729986J	FILTER CE TPS5.5MB2
CF11	EH-363276	FILTER CE TPS4.5MB2
D1	ED-729782J	D SILICON CHIP HSM2693
D2	ED-729989J	D SILICON CHIP HSM2694
D3	ED-729781J	D SILICON CHIP HSR277
D4	ED-724694J	D SILICON CHIP MC2838
D5	ED-724694J	D SILICON CHIP MC2838
D6	ED-724694J	D SILICON CHIP MC2838
D7	ED-729781J	D SILICON CHIP HSR277
IC1	EI-368809	IC M51496P
L1	EO-388205J	COIL FIX 1 EL0405SKI R82M
L2	EO-381187J	COIL FIX 1 EL0405SKI R68M
L3	EO-392809J	COIL FIX 1 LF-5.0S F05 R82M
L4	EO-725956J	COIL AFT 6F16262A1
L5	EO-725956J	COIL AFT 6F16262A1
L6	EO-725954J	COIL SIF DET 6F16263A3
L7	EO-345975	COIL FIX 1 EL0606RA T05 4R7K
L8	EO-397238J	COIL FIX 1 EL0405SKI 6R8K
L9	EO-381189J	COIL FIX 1 EL0405SKI 100K
L10	EO-376610	COIL FIX 1 LF-5.0S F05 330K
L11	EO-381192J	COIL FIX 1 EL0405SKI 270K
L12	EO-396361J	COIL FIX 1 EL0405SKI 8R2K
L13	EO-387803J	COIL FIX 1 EL0405SKI 221K
Q1	ET-725820J	TR CHIP 2SC2735J
Q2	ET-713614	TR CHIP 2SA1235 E,F
Q3	ET-713614	TR CHIP 2SA1235 E,F
Q4	ET-370819	TR CHIP 2SC3052
Q6	ET-724885J	TR CHIP RT1N141C
Q7	ET-724692J	TR CHIP RT1N441C
Q8	ET-724885J	TR CHIP RT1N141C
Q9	ET-370819	TR CHIP 2SC3052
Q10	ET-370819	TR CHIP 2SC3052
Q11	ET-724692J	TR CHIP RT1N441C
Q12	ET-724692J	TR CHIP RT1N441C
Q13	ET-724692J	TR CHIP RT1N441C
VR1	EV-353425	R S-FIX H RVF6P01 0.10W 103
VR2	EV-388163J	R S-FIX V RVF6W01 0.10W 202
X1	EH-729673J	CERA LOCK CSB512P
X2	EI-394869J	OSC CE CSA1.481MK901

12. VIF/SJ P.C BOARD (X470EGN)

Ref.No.	Part No.	Description
D1	ED-307572	D SILICON H 1SS131
D2	ED-307572	D SILICON H 1SS131
D3	ED-307572	D SILICON H 1SS131
D4	ED-307572	D SILICON H 1SS131
D5	ED-307572	D SILICON H 1SS131
D6	ED-307572	D SILICON H 1SS131
FL1	EH-394874J	FILTER CE SAF38.9MZA70Z
FL2	EH-368948	FILTER CE TPS5.5MW 5.5000MHZ
FL3	EH-394871J	FILTER CE TPW01B 6.000MHZ
FL4	EH-363276	FILTER CE TPS4.5MB2
FL5	EH-370812	FILTER CE SFE4.5MB
FL6	EH-373921	FILTER CE SFE6.0MB
FL7	EH-373920	FILTER CE SFE5.5MB
FL8	EH-358973	FILTER CE SFE6.5MB 6.500MC
FL9	EH-373921	FILTER CE SFE6.0MB
FL10	EH-394872J	FILTER CE CDA6.0MD10
FL11	EH-394875J	FILTER CE SAF32.4MB50P
IC1	EI-394868J	IC UPC1820CA
IC2	EI-389645J	IC LA7710
IC3	EI-389644J	IC BA403
IC4	EI-396341J	IC LVA522S-2
L1	EO-396627J	COIL VARI 1 YS-9112 M7-D3 TRAP
L2	EO-396629J1	COIL TUN 1 YS-9108 M7-T1 VCO
L3	EO-396631J	COIL TUN 1 YS-9111 M7-M AFT
L4	EO-396632J	COIL TUN 1 YS-9110 M7-T1 LLD
L5	EO-381187J	COIL FIX 1 EL0405SKI R68M
L6	EO-387800J	COIL FIX 1 EL0405SKI 2R7K
L7	EO-381189J	COIL FIX 1 EL0405SKI 100K
L8	EO-381189J	COIL FIX 1 EL0405SKI 100K
L9	EO-396361J	COIL FIX 1 EL0405SKI 8R2K
L10	EO-397238J	COIL FIX 1 EL0405SKI 6R8K
L11	EO-381189J	COIL FIX 1 EL0405SKI 100K
L12	EO-388206J	COIL FIX 1 EL0405SKI 680K
L13	EO-381192J	COIL FIX 1 EL0405SKI 270K
L14	EO-387803J	COIL FIX 1 EL0405SKI 221K
L15	EO-396361J	COIL FIX 1 EL0405SKI 8R2K
PJ1	EJ-395057J	PIN J YKB11-0001 BLACK 1P
TR1	ET-353897	TR DTC114ES
TR2	ET-354414	TR DTC144ES
TR3	ET-364060	TR DTC143ES
TR4	ET-354414	TR DTC144ES
TR5	ET-360646	TR DTA143ES
TR6	ET-354414	TR DTC144ES
TR7	ET-354414	TR DTC144ES
TR8	ET-354414	TR DTC144ES
TR9	ET-354414	TR DTC144ES
TR10	ET-354414	TR DTC144ES
TR11	ET-354414	TR DTC144ES
TR12	ET-354414	TR DTC144ES
TR13	ET-375777	TR 2SC2926S P,Q
TR14	ET-375777	TR 2SC2926S P,Q
TR15	ET-353899	TR 2SA1317 S,T,U
TR16	ET-397160J	TR 2SC3330 R,S,T,U,V
TR19	ET-397160J	TR 2SC3330 R,S,T,U,V
TR20	ET-321644	TR 2SC1213 C
TR21	ET-353899	TR 2SA1317 S,T,U
TR22	ET-397160J	TR 2SC3330 R,S,T,U,V
TR23	ET-397160J	TR 2SC3330 R,S,T,U,V
TR24	ET-397160J	TR 2SC3330 R,S,T,U,V
TR25	ET-397160J	TR 2SC3330 R,S,T,U,V
TR26	ET-397160J	TR 2SC3330 R,S,T,U,V
TR27	ET-353899	TR 2SA1317 S,T,U
VR1	EV-389489J	R S-FIX H T05EVNDXAA03 0.1W472
VR2	EV-389479J	R S-FIX H T05EVNDXAA03 0.1W223
VR3	EV-397431J	R S-FIX H T05EVNDXAA03 0.1W681
VR4	EV-389476J	R S-FIX H T05EVNDXAA03 0.1W103
X1	EI-394870J	OSC CE CSB500F23 504.5KHZ
X2	EI-368829	OSC CE CSB512P
X3	EI-394869J	OSC CE CSA1.481MK901

13. VIF/SJ (B) P.C BOARD (X470EGN)

Ref.No.	Part No.	Description
IC101	EI-396633J	IC MSM6989RS
L101	EO-356599	COIL FIX 1 LAP02 F05 270K
L102	EO-353901	COIL FIX 1 LAP02 F05 560K
L103	EO-351868	COIL FIX 1 LAP02 F05 470K
L104	EO-351866	COIL FIX 1 LAP02 F05 330K
L105	EO-351866	COIL FIX 1 LAP02 F05 330K
L106	EO-353900	COIL FIX 1 LAP02 F05 150K
L107	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L108	EO-345865	COIL FIX 1 EL0606SKI 100J
L109	EO-345865	COIL FIX 1 EL0606SKI 100J
L110	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L111	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L112	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L113	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L114	EO-345869	COIL FIX 1 EL0606SKI 150J
TH101	EX-359254	THERMISTOR ERT-D22HL153S
TR101	ET-397160J	TR 2SC3330 R,S,T,U,V
TR102	ET-353897	TR DTC114ES
TR103	ET-354414	TR DTC144ES
TR104	ET-354414	TR DTC144ES
TR105	ET-397160J	TR 2SC3330 R,S,T,U,V
TR106	ET-353899	TR 2SA1317 S,T,U
TR107	ET-397160J	TR 2SC3330 R,S,T,U,V
TR108	ET-353899	TR 2SA1317 S,T,U
TR109	ET-397160J	TR 2SC3330 R,S,T,U,V
TR110	ET-353897	TR DTC114ES
VC101	EC-363329	C S-FIX H CTC-6U-010 2.5-10
VR101	EV-394962J	R S-FIX H T05EVNDXAA03 0.1W102
VR102	EV-397433J	R S-FIX H T05EVNDXAA03 0.1W152
X101	EI-370418	OSC X'TAL NR-18 10.000MHZ

14. PRE-AMP P.C BOARD (X400EGN)

Ref.No.	Part No.	Description
D1	ED-307572	D SILICON H 1SS131
D2	ED-307572	D SILICON H 1SS131
D3	ED-307572	D SILICON H 1SS131
D4	ED-400680J	D LED SLR33MC70F80 GREEN T05
IC1	EI-387598J	IC BA7252S
L1	EO-376857	COIL FIX 1 LF-5.0S F05 5R6K
L2	EO-376859	COIL FIX 1 LF-5.0S F05 8R2K
L3	EO-376603	COIL FIX 1 LF-5.0S F05 150K
L4	EO-376603	COIL FIX 1 LF-5.0S F05 150K
L5	EO-376612	COIL FIX 1 LF-5.0S F05 680K
L6	EO-376860	COIL FIX 1 LF-5.0S F05 820K
L8	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L10	EO-387803J	COIL FIX 1 EL0405SKI 221K
L11	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L12	EO-376610	COIL FIX 1 LF-5.0S F05 330K
L13	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L14	EO-376858	COIL FIX 1 LF-5.0S F05 560K
L15	EO-388088J	COIL FIX 1 EL0405SKI 151K
P1	EJ-387587J	SOCKET 8370-67-800 6P
PS1	EJ-389318J	SOCKET HOUSING 5062-30-10-19
TR1	ET-370310	TR DTC144TS
TR3	ET-354414	TR DTC144ES
TR4	ET-354414	TR DTC144ES
TR5	ET-353899	TR 2SA1317 S,T,U
TR6	ET-397160J	TR 2SC3330 R,S,T,U,V
TR7	ET-397160J	TR 2SC3330 R,S,T,U,V
TR8	ET-397160J	TR 2SC3330 R,S,T,U,V
TR9	ET-397160J	TR 2SC3330 R,S,T,U,V
TR10	ET-354364	TR DTC143TS
TR11	ET-354414	TR DTC144ES
TR12	ET-353897	TR DTC114ES
VR1	EV-390157J	R S-FIX V KVSF639A 0.10W 102
WP1	EW-394789J	CORD FFC P1.25 L=220 9P

15. PRE-AMP P.C BOARD

Ref.No.	Part No.	Description
D1	ED-307572	D SILICON H 1SS131
D2	ED-307572	D SILICON H 1SS131
D3	ED-307572	D SILICON H 1SS131
D4	ED-307572	D SILICON H 1SS131
D5	ED-400680J	D LED SLR33MC70F80 GREEN T05
IC1	EI-387586J	IC BA7244BS
L1	EO-376858	COIL FIX 1 LF-5.0S F05 560K
L2	EO-376857	COIL FIX 1 LF-5.0S F05 5R6K
L3	EO-376859	COIL FIX 1 LF-5.0S F05 8R2K
L4	EO-380734J	COIL FIX 1 LF-5.0S F05 6R8K
L5	EO-376605	COIL FIX 1 LF-5.0S F05 151K
L6	EO-376612	COIL FIX 1 LF-5.0S F05 680K
L7	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L8	EO-376614	COIL FIX 1 LF-5.0S F05 220K
L9	EO-376603	COIL FIX 1 LF-5.0S F05 150K
L10	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L11	EO-376610	COIL FIX 1 LF-5.0S F05 330K
L12	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L13	EO-387803J	COIL FIX 1 EL0405SKI 221K
L14	EO-376860	COIL FIX 1 LF-5.0S F05 820K
P1	EJ-387587J	SOCKET 8370-67-800 6P
PS1	EJ-387497J	SOCKET HOUSING 5062-30-10-13
TR1	ET-353899	TR 2SA1317 S,T,U
TR2	ET-360399	TR DTC114TS
TR3	ET-354414	TR DTC144ES
TR5	ET-397160J	TR 2SC3330 R,S,T,U,V
TR6	ET-354414	TR DTC144ES
TR7	ET-397160J	TR 2SC3330 R,S,T,U,V
TR8	ET-354414	TR DTC144ES
TR9	ET-397160J	TR 2SC3330 R,S,T,U,V
TR10	ET-397160J	TR 2SC3330 R,S,T,U,V
TR11	ET-353897	TR DTC114ES
TR12	ET-354364	TR DTC143TS
TR13	ET-354414	TR DTC144ES
TR14	ET-353897	TR DTC114ES
TR15	ET-354414	TR DTC144ES
VR1	EV-390157J	R S-FIX V KVSF639A 0.10W 102
WP1	EW-394787J	CORD FFC P1.25 L=220 13P

16. OPERATION P.C BOARD

Ref.No.	Part No.	Description
D1	ED-307572	D SILICON H 1SS131
D2	ED-387765J	D ZENER H HZS9C1L F05
D3	ED-307572	D SILICON H 1SS131
D6	ED-307572	D SILICON H 1SS131
D7	ED-307572	D SILICON H 1SS131
D8	ED-307572	D SILICON H 1SS131
D9	ED-307572	D SILICON H 1SS131
D10	ED-307572	D SILICON H 1SS131
D11	ED-307572	D SILICON H 1SS131
D12	ED-307572	D SILICON H 1SS131
D13	ED-307572	D SILICON H 1SS131
D14	ED-307572	D SILICON H 1SS131
D15	ED-307572	D SILICON H 1SS131
D18	ED-307572	D SILICON H 1SS131 [X450EGN/X470EGN]
D19	ED-307572	D SILICON H 1SS131 [X470EGN]
D20	ED-307572	D SILICON H 1SS131
D21	ED-307572	D SILICON H 1SS131 [X450EGN/X470EGN]
FL1	EM-387624J	IND FL FV345G CHARACTER
IB1	EH-394833J	COMP R RGLE12X 103J
IB2	EH-378540J	COMP R RGLE5X 103J
IB4	EH-378541J	COMP R RGLE3X 473J
IC1	EI-394834J	IC UPD75216ACW SXEGNOP1-A80
IC2	EI-394467J	IC X24C01P
IC3	EI-373955	IC S-8053ALR
LED1	ED-394836J	D LED SLR40VC70F165 RED T05
LED2	ED-394618J	D LED SLR34MC70F165 GREEN T05 [X450EGN/X470EGN]
LED3	ED-394618J	D LED SLR34MC70F165 GREEN T05
LED4	ED-394618J	D LED SLR34MC70F165 GREEN T05
LED5	ED-394618J	D LED SLR34MC70F165 GREEN T05
LED6	ED-394618J	D LED SLR34MC70F165 GREEN T05

Ref.No.	Part No.	Description
LED7	ED-394617J	D LED SLR54MG70F150 GREEN T05
LED8	ED-394617J	D LED SLR54MG70F150 GREEN T05
PH1	ET-390397J	DETECTOR GP1U501
PS1	EJ-389815J	SOCKET HOUSING 5062-30-10-15
PS2	EJ-387497J	SOCKET HOUSING 5062-30-10-13
SW1	ES-349474	SW TACT SKHHAM004A [RESET]
SW2	ES-349474	SW TACT SKHHAM004A [STOP]
SW3	ES-349474	SW TACT SKHHAM004A [EJECT]
SW4	ES-349474	SW TACT SKHHAM004A [POWER]
SW5	ES-349474	SW TACT SKHHAM004A [PLAY]
SW6	ES-349474	SW TACT SKHHAM004A [SYSTEM]
SW7	ES-349474	SW TACT SKHHAM004A [PAUSE]
SW8	ES-349474	SW TACT SKHHAM004A [CH UP]
SW9	ES-349474	SW TACT SKHHAM004A [F.FWD]
SW10	ES-349474	SW TACT SKHHAM004A [M]
SW12	ES-349474	SW TACT SKHHAM004A [REC]
SW13	ES-349474	SW TACT SKHHAM004A [TIMER]
SW15	ES-349474	SW TACT SKHHAM004A [SLOW]
SW16	ES-349474	SW TACT SKHHAM004A [CH DOWN]
SW17	ES-349474	SW TACT SKHHAM004A [REW]
SW18	ES-349474	SW TACT SKHHAM004A [TIMER STOP]
SW19	ES-349474	SW TACT SKHHAM004A [H]
SW20	ES-349474	SW TACT SKHHAM004A [AUTO/MANU]
SW21	ES-390156J1	SW SLIDE SSSS91690B1-01-02N [SPEED,X450EGN/X470EGN]
SW22	ES-390156J1	SW SLIDE SSSS91690B1-01-02N [NTSC-PAL]
TR1	ET-354414	TR DTC144ES
TR2	ET-354414	TR DTC144ES
TR3	ET-397160J	TR 2SC3330 R,S,T,U,V
TR4	ET-397160J	TR 2SC3330 R,S,T,U,V
TR5	ET-397160J	TR 2SC3330 R,S,T,U,V
WP1	EW-389315J	CORD FFC P1.25 L=1201 5P
WP2	EW-389314J	CORD FFC P1.25 L=1701 3P
X1	EI-373957J1	OSC CE CST4.19MGW 41 94MHZ
X2	EI-368825	OSC XTAL MX-38T 32.768KHZ

17. POWER SUPPLY (A) P.C BOARD

Ref.No.	Part No.	Description
C1	EC-400761J	C EC V CUT SME 472M 15.0DC
C2	EC-364958	C EC V CUT SME 222M 5.0DC
C104	*EC-378327	C EC V SM 2R2M 450DC
D1	*ED-511907	D SILICON 1N4002 100/1.0A
D2	*ED-511907	D SILICON 1N4002 100/1.0A
D3	*ED-511907	D SILICON 1N4002 100/1.0A
D4	*ED-511907	D SILICON 1N4002 100/1.0A
D5	ED-307752	D ZENER H HZ6B2L
D6	ED-386226J	D SCHOTTKY RB100AT32T26 40/1
D7	ED-381585J	D ZENER H HZS11B1J F05
D8	ED-386226J	D SCHOTTKY RB100AT32T26 40/1
D11	ED-386226J	D SCHOTTKY RB100AT32T26 40/1
D12	ED-307752	D ZENER H HZ6B2L
D13	ED-391103J	D ZENER H HZS12B2
D15	ED-386226J	D SCHOTTKY RB100AT32T26 40/1
D16	ED-366684	D SILICON H 1SS136 F05
D103	ED-346526	D ZENER H HZ6B1L
D104	ED-624903	D SILICON H 1S2473
D105	ED-346526	D ZENER H HZ6B1L
FR1	*ER-400688J	R FUSE V T05 RF25SCV P1/4WR10K

Ref.No.	Part No.	Description
FR2	*ER-400728J	R FUSE V T05 RF25SCVTP1/4WR12K
FR3	*ER-400689J	R FUSE V T05 RF25SCVTP1/4WR68K
FR4	*ER-400728J	R FUSE V T05 RF25SCVTP1/4WR12K
FR6	*ER-400689J	R FUSE V T05 RF25SCVTP1/4WR68K
IC102	*EI-368152	IC BA707
L1	EO-392806J	COIL FIX 2 C-5328-01 560K
L2	EO-392806J	COIL FIX 2 C-5328-01 560K
L3	EO-393764J	COIL FIX 2 C-5333-01 101K
L4	EO-393764J	COIL FIX 2 C-5333-01 101K
L6	EO-386541J	COIL FIX 1 ELF1010SKI 101K
L9	EO-393769J	COIL FIX 1 LHL06TB T05 471K
R14	ER-393768J	R OMF H S15 FS 2W 270J
R108	ER-376864	R OMF H S12 SPR1 1W 274J
TR1	ET-395084J	TR 2SB1331 R T05
TR4	ET-397160J	TR 2SC3330 R,S,T,U,V
TR5	ET-395084J	TR 2SB1331 R T05
TR6	ET-353899	TR 2SA1317 S,T,U
TR8	ET-353899	TR 2SA1317 S,T,U
TR9	ET-395084J	TR 2SB1331 R T05
TR10	ET-380685J	TR 2SD1761 E,F,G
TR11	ET-395084J	TR 2SB1331 R T05
TR101	*ET-389415J	TR 2SC3169
TR102	ET-397160J	TR 2SC3330 R,S,T,U,V
TR103	*ET-389415J	TR 2SC3169

18. POWER SUPPLY (B) P.C BOARD

Ref.No.	Part No.	Description
D9	ED-307752	D ZENER H HZ6B2L
D10	ED-307572	D SILICON H 1SS131
IC1	EI-381575J	IC BA6121
L5	EO-380091J1	COIL FIX 2 C-5293-01 560K
TR2	ET-380685J	TR 2SD1761 E,F,G
TR3	ET-353899	TR 2SA1317 S,T,U
TR7	ET-380685J	TR 2SD1761 E,F,G

19. POWER SUPPLY (C) P.C BOARD

Ref.No.	Part No.	Description
D14	*ED-357037	D SILICON DBA30B 100/ 3.0A

20. POWER SUPPLY (D) P.C BOARD

Ref.No.	Part No.	Description
C101	*EC-389414J	C CE V DE7 B102K 400AC
D101	*ED-385935J	D SILICON ERA22-04V3 T26 400/5
D102	ED-307572	D SILICON H 1SS131
D106	ED-385935J	D SILICON ERA22-04V3 T26 400/5
D107	*ED-397189J	D SILICON 1N4005 F10 600/1.0A
D108	*ED-397189J	D SILICON 1N4005 F10 600/1.0A
F101	*EF-601942	FUSE SEMKO T 250V 630MA
IC101	*EI-376794J1	IC BA10393
L101	*EO-389410J	COIL LF RR03R212A10 10.0UH
L102	*EO-389410J	COIL LF RR03R212A10 10.0UH
RL101	*EQ-389298J	RELAY POW AJV12442 1NO 100V

21. CHROMA EGN P.C BOARD (X400EGN)

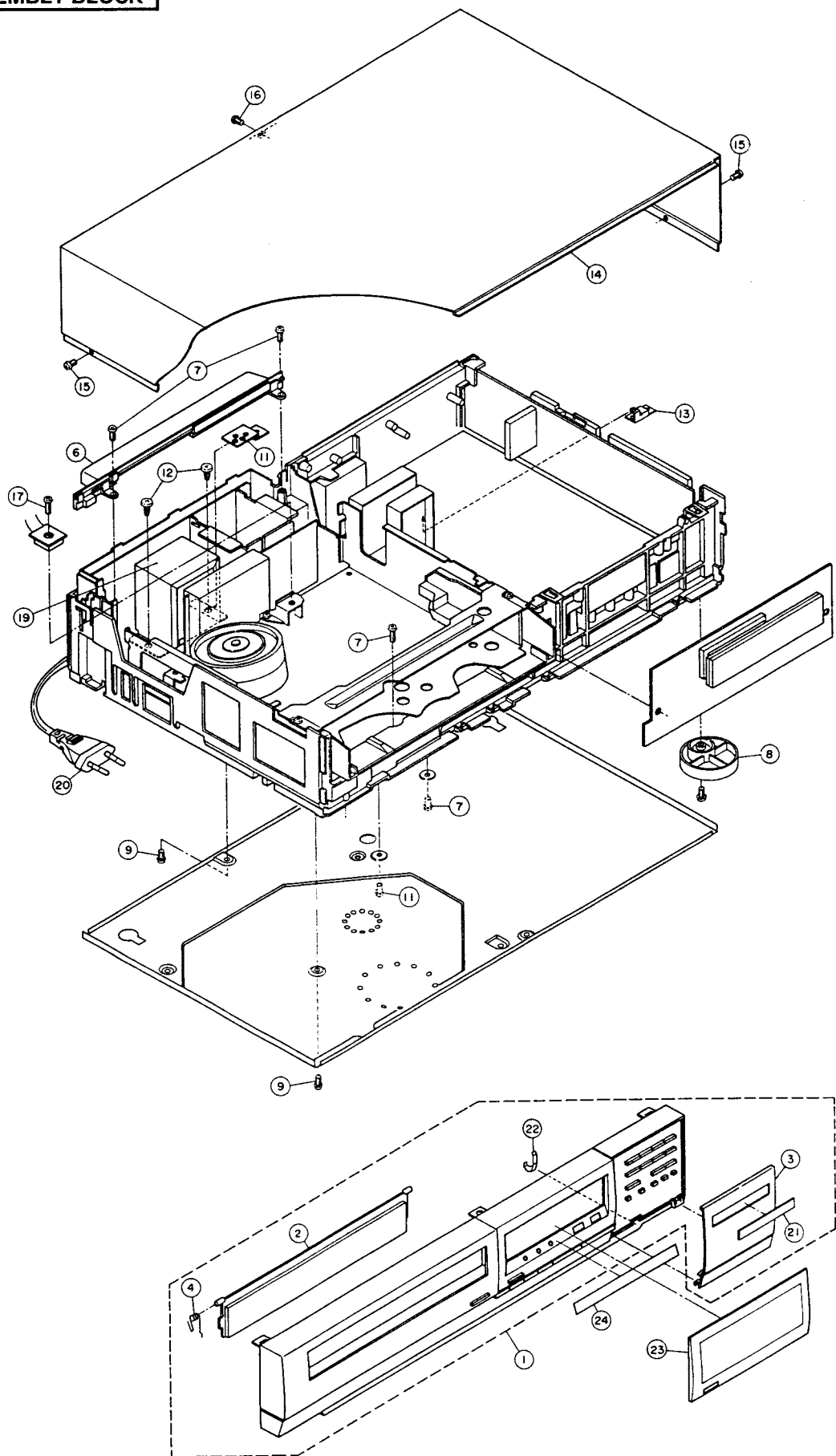
Ref.No.	Part No.	Description
D1	ED-307572	D SILICON H 1SS131
D2	ED-307572	D SILICON H 1SS131
D101	ED-307572	D SILICON H 1SS131
D102	ED-307572	D SILICON H 1SS131
D103	ED-307572	D SILICON H 1SS131
D104	ED-307572	D SILICON H 1SS131
DL1	EH-370413	DL ADL-FN2135Q-B03
DL101	EH-390730J	DL EFD-JF124A13J
DL102	EH-394838J	DL ADL-FN1344Q
FL1	EH-395095J	FILTER LC SPL SFB-4398
FL101	EH-364045	FILTER LC FF-78P
FL102	EH-370812	FILTER CE SFE4.5MB
IC1	EI-373981J1	IC BA10393N
IC2	EI-394839J	IC LA7332
IC3	EI-384806J	IC TC74HC4053AP
IC4	EI-356457	IC BU4013B
IC101	EI-394839J	IC LA7332
IC102	EI-366892	IC BA7025L
L1	EO-353900	COIL FIX 1 LAP02 F05 150K
L2	EO-388353J	COIL FIX 1 LF-5.0S F05 471K
L3	EO-388087J	COIL FIX 1 LF-5.0S F05 331K
L4	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L5	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L6	EO-387799J	COIL FIX 1 EL0405SKI 180K
L7	EO-368619	COIL FIX 1 LAP02 F05 3R3K
L8	EO-353901	COIL FIX 1 LAP02 F05 560K
L9	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L10	EO-351868	COIL FIX 1 LAP02 F05 470K
L11	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L12	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L101	EO-354600	COIL FIX 1 LAP02 F05 101K
L103	EO-353900	COIL FIX 1 LAP02 F05 150K
L104	EO-353900	COIL FIX 1 LAP02 F05 150K
L105	EO-387799J	COIL FIX 1 EL0405SKI 180K
L106	EO-368619	COIL FIX 1 LAP02 F05 3R3K
L107	EO-351868	COIL FIX 1 LAP02 F05 470K
L108	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L109	EO-351867	COIL FIX 1 LAP02 F05 390K
L110	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L111	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L113	EO-353900	COIL FIX 1 LAP02 F05 150K
TR3	ET-353897	TR DTC114ES
TR4	ET-397160J	TR 2SC3330 R,S,T,U,V
TR5	ET-397160J	TR 2SC3330 R,S,T,U,V
TR6	ET-397160J	TR 2SC3330 R,S,T,U,V
TR7	ET-353897	TR DTC114ES
TR8	ET-354414	TR DTC144ES
TR9	ET-397160J	TR 2SC3330 R,S,T,U,V
TR10	ET-397160J	TR 2SC3330 R,S,T,U,V
TR11	ET-397160J	TR 2SC3330 R,S,T,U,V
TR12	ET-397160J	TR 2SC3330 R,S,T,U,V
TR13	ET-397160J	TR 2SC3330 R,S,T,U,V
TR15	ET-397160J	TR 2SC3330 R,S,T,U,V
TR16	ET-397160J	TR 2SC3330 R,S,T,U,V
TR17	ET-397160J	TR 2SC3330 R,S,T,U,V
TR18	ET-397160J	TR 2SC3330 R,S,T,U,V
TR19	ET-354414	TR DTC144ES
TR101	ET-353897	TR DTC114ES
TR102	ET-354414	TR DTC144ES
TR103	ET-397160J	TR 2SC3330 R,S,T,U,V
TR104	ET-397160J	TR 2SC3330 R,S,T,U,V
TR105	ET-397160J	TR 2SC3330 R,S,T,U,V
TR106	ET-397160J	TR 2SC3330 R,S,T,U,V
TR107	ET-397160J	TR 2SC3330 R,S,T,U,V
TR108	ET-397160J	TR 2SC3330 R,S,T,U,V
TR109	ET-397160J	TR 2SC3330 R,S,T,U,V
TR110	ET-397160J	TR 2SC3330 R,S,T,U,V
TR111	ET-397160J	TR 2SC3330 R,S,T,U,V
VL101	EO-366893	COIL VARI 1 21D6 8.20MH
VR1	EV-356579	R S-FIX H RH0615C 0.10W 102
VR101	EV-356579	R S-FIX H RH0615C 0.10W 102
X1	EI-381661J	OSC XTAL(86898) 3.579545MHZ
X101	EI-381632J	OSC XTAL(86686) 4.433619MHZ

22. CHROMA P.C BOARD (X450EGN/X470EGN)

Ref.No.	Part No.	Description
D1	ED-307572	D SILICON H 1SS131
D2	ED-307572	D SILICON H 1SS131
D101	ED-307572	D SILICON H 1SS131
D102	ED-307572	D SILICON H 1SS131
D103	ED-307572	D SILICON H 1SS131
D104	ED-307572	D SILICON H 1SS131
D201	ED-307572	D SILICON H 1SS131
D202	ED-307572	D SILICON H 1SS131
DL1	EH-370413	DL ADL-FN2135Q-B03
DL101	EH-390730J	DL EFD-JF124A13J
DL102	EH-394838J	DL ADL-FN1344Q
FL1	EH-395095J	FILTER LC SPL SFB-4398
FL101	EH-364045	FILTER LC FF-78P
FL102	EH-370812	FILTER CE SFE4.5MB
FL201	EH-389200J	FILTER LC BP SBP-4425-107M
FL202	EH-378927J	FILTER LC BP BPF-K5-MS(5969)
FL203	EH-367043	FILTER LC BP H289BNKN-7235LHD
FL204	EH-366894	FILTER CE SFE-4.16MB 4.16MHZ
IC1	EI-373981J1	IC BA10393N
IC2	EI-394839J	IC LA7332
IC3	EI-384806J	IC TC74HC4053AP
IC4	EI-356457	IC BU4013B
IC101	EI-394839J	IC LA7332
IC102	EI-366892	IC BA7025L
IC201	EI-372243	IC BA7107S
IC202	EI-366892	IC BA7025L
L1	EO-353900	COIL FIX 1 LAP02 F05 150K
L2	EO-388353J	COIL FIX 1 LF-5.0S F05 471K
L3	EO-388087J	COIL FIX 1 LF-5.0S F05 331K
L4	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L5	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L6	EO-387799J	COIL FIX 1 EL0405SKI 180K
L7	EO-368619	COIL FIX 1 LAP02 F05 3R3K
L8	EO-353901	COIL FIX 1 LAP02 F05 560K
L9	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L10	EO-351868	COIL FIX 1 LAP02 F05 470K
L11	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L12	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L14	EO-381189J	COIL FIX 1 EL0405SKI 100K
L101	EO-354600	COIL FIX 1 LAP02 F05 101K
L103	EO-353900	COIL FIX 1 LAP02 F05 150K
L104	EO-353900	COIL FIX 1 LAP02 F05 150K
L105	EO-387799J	COIL FIX 1 EL0405SKI 180K
L106	EO-368619	COIL FIX 1 LAP02 F05 3R3K
L107	EO-351868	COIL FIX 1 LAP02 F05 470K
L108	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L109	EO-351867	COIL FIX 1 LAP02 F05 390K
L110	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L111	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L113	EO-353900	COIL FIX 1 LAP02 F05 150K
L201	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L202	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L203	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L204	EO-357508	COIL FIX 1 LAP02 F05 151K
L205	EO-353900	COIL FIX 1 LAP02 F05 150K
L206	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L207	EO-353901	COIL FIX 1 LAP02 F05 560K
TR3	ET-353897	TR DTC114ES
TR4	ET-397160J	TR 2SC3330 R,S,T,U,V
TR5	ET-397160J	TR 2SC3330 R,S,T,U,V
TR6	ET-397160J	TR 2SC3330 R,S,T,U,V
TR7	ET-353897	TR DTC114ES
TR8	ET-354414	TR DTC144ES
TR9	ET-397160J	TR 2SC3330 R,S,T,U,V
TR10	ET-397160J	TR 2SC3330 R,S,T,U,V
TR11	ET-397160J	TR 2SC3330 R,S,T,U,V
TR12	ET-397160J	TR 2SC3330 R,S,T,U,V
TR13	ET-397160J	TR 2SC3330 R,S,T,U,V
TR15	ET-397160J	TR 2SC3330 R,S,T,U,V
TR16	ET-397160J	TR 2SC3330 R,S,T,U,V
TR17	ET-397160J	TR 2SC3330 R,S,T,U,V
TR18	ET-397160J	TR 2SC3330 R,S,T,U,V
TR19	ET-354414	TR DTC144ES
TR101	ET-353897	TR DTC114ES
TR102	ET-354414	TR DTC144ES
TR103	ET-397160J	TR 2SC3330 R,S,T,U,V
TR104	ET-397160J	TR 2SC3330 R,S,T,U,V
TR105	ET-397160J	TR 2SC3330 R,S,T,U,V
TR106	ET-397160J	TR 2SC3330 R,S,T,U,V

Ref.No.	Part No.	Description
TR107	ET-397160J	TR 2SC3330 R,S,T,U,V
TR108	ET-397160J	TR 2SC3330 R,S,T,U,V
TR109	ET-397160J	TR 2SC3330 R,S,T,U,V
TR110	ET-397160J	TR 2SC3330 R,S,T,U,V
TR111	ET-397160J	TR 2SC3330 R,S,T,U,V
TR201	ET-397160J	TR 2SC3330 R,S,T,U,V
TR202	ET-397160J	TR 2SC3330 R,S,T,U,V
TR203	ET-397160J	TR 2SC3330 R,S,T,U,V
TR204	ET-364064	TR UN4119
TR205	ET-354415	TR DTA144ES
TR206	ET-397160J	TR 2SC3330 R,S,T,U,V
TR207	ET-397160J	TR 2SC3330 R,S,T,U,V
TR208	ET-353897	TR DTC114ES
VL101	EO-366893	COIL VARI 1 21D6 8.20MH
VL201	EO-364063	COIL VARI 1 F291CNS-0665BS
VL202	EO-364062	COIL VARI 1 F291CNS-0666GW
VL203	EO-366893	COIL VARI 1 21D6 8.20MH
VR1	EV-356579	R S-FIX H RH0615C 0.10W 102
VR101	EV-356579	R S-FIX H RH0615C 0.10W 102
VR201	EV-356583	R S-FIX H RH0615C 0.10W 332
VR202	EV-385937J	R S-FIX H VM6CKPVB 0.30W 223
X1	EI-381661J	OSC X'TAL(86898) 3.579545MHZ
X101	EI-381632J	OSC X'TAL(86686) 4.433619MHZ

FINAL ASSEMBLY BLOCK



PARTS LIST

23. FINAL ASSEMBLY

Ref.No.	Part No.	Description
1A	BD-395303J	PANEL FRONT VS-X400EGN-B PART
1B	BD-395318J	PANEL FRONT VS-X450EGN-B PART
1C	BD-395301J	PANEL FRONT VS-X470EGN-B PART
2A	SE-395314J	MASK CASSETTE VS-X400
2B	SE-395311J	MASK CASSETTE VS-X450
2C	SE-395312J	MASK CASSETTE VS-X470
3A	SP-396001J	DOOR SHX(D) [X400EGN]
3B	SP-395999J	DOOR SHX(C) [X450EGN/X470EGN]
4	ZG-387370J	SP MASK
6	SC-387353J	COVER TRANS
7	ZS-362378	PLX BID30X10STL CMT
8	SA-387004J	FOOT(V)
9	ZS-364543	DT BID30X06STL CMT
11	ZG-387505J	PLATE EARTH
12	ZS-373962	PLX BID40X10STL CMT
13	ZG-387354J	PLATE EARTH(2)
14	SP-395632J	COVER UPPER P SUEDE(2)
15	ZS-385611J	DT BID26X06STL BNI
16	ZS-391046J	PLX BID26X10STL BNI
17	ZS-357946	PLX PAN30X10STL CMT C080
19	*BT-394846J1	TRANS POW V1114EGN
20	*EW-385900M	AC CORD 200 SE-1H03VV B130 A E
21A	SE-395317J	PLATE BADGE(C) [X400EGN]
21B	SE-395315J	PLATE BADGE(A) [X450EGN]
21C	SE-395316J	PLATE BADGE(B) [X470EGN]
22	ZG-395993J	SP PLATE DOOR
23	SE-401426J	WINDOW FLD(D)
24A	SE-395969J	WINDOW LED SDX(D) [X400EGN]
24B	SE-395968J	WINDOW LED SDX(C) [X450EGN/X470EGN]

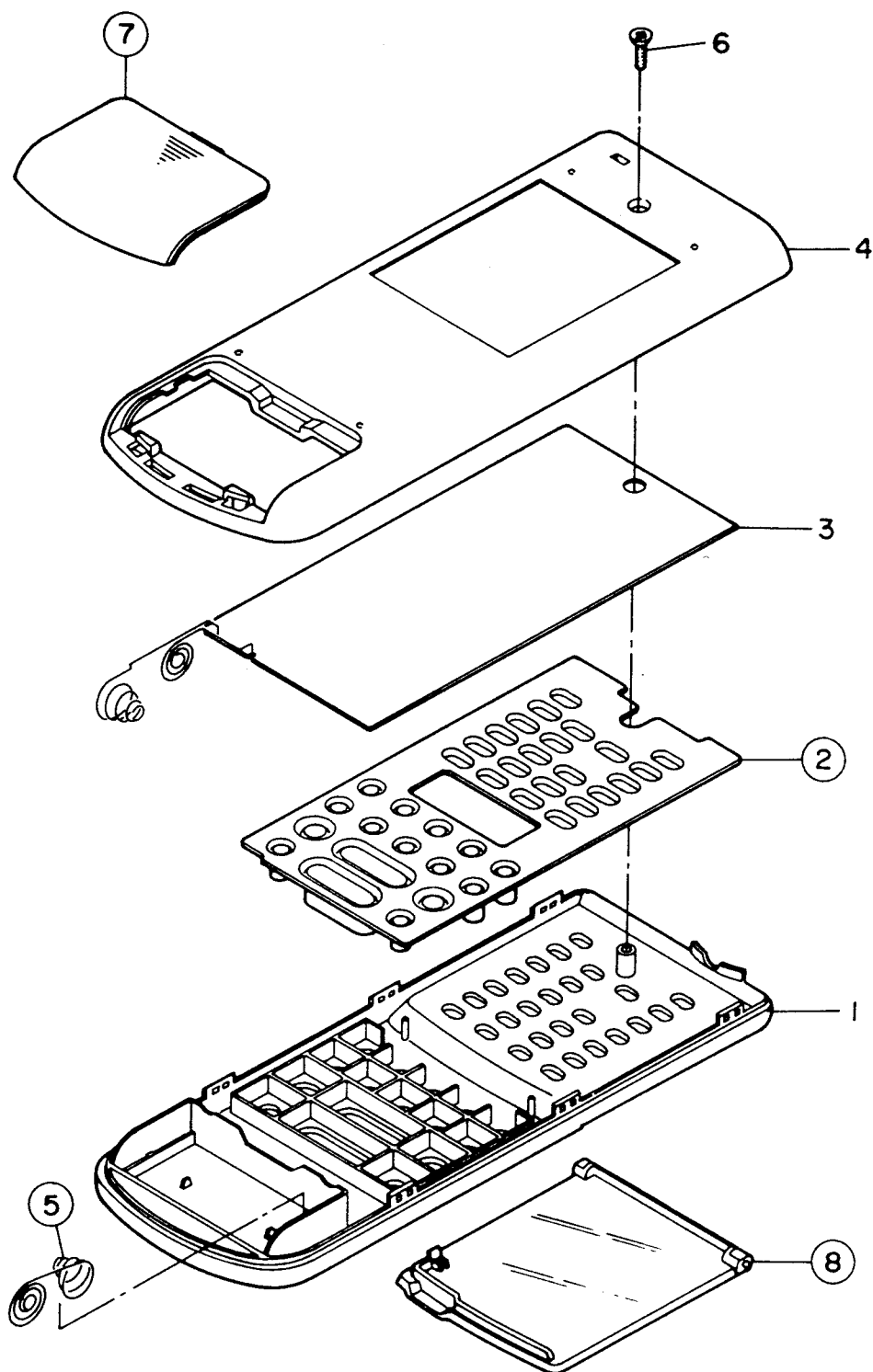
NOTE:

Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

24. ACCESSARY

Ref.No.	Part No.	Description
1	EW-348414	CORD PAL
2	AV-B1012B010A	REMOCON BLK RC-V10A-EB

REMOCON RC-V10A-EB



25. REMOCON RC-V10A-EB

Ref.No.	Part No.	Description
2	MB-394376J	KEY RUBBER
5	ZG-394389J	TERMINAL BATTERY(Q3)
7	SC-394382J	COVER BATTERY(N)-2
8	SP-394383J1	DOOR PANEL

26. REMOCON P.C BOARD (RC-V10A)

Ref.No.	Part No.	Description
D1	ED-390686J	D LED TLN105B INFRARED
D2	ED-307572	D SILICON H 1SS131
D3	ED-307572	D SILICON H 1SS131
D4	ED-307572	D SILICON H 1SS131
IC1	EI-376112	IC UPD6122G
TR1	ET-360695	TR 2SD1302 S,T
X1	EI-390687J	OSC CE CSU455PL 455KHZ
1	ZG-394428J	TERMINAL BATTERY(P1)
2	ZG-394429J	TERMINAL BATTERY(P2)

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ABBREVIATIONS (VIDEO)

ABBREVIATION	EXPLANATION	ABBREVIATION	EXPLANATION
A	Audio or Analogue	MOD	MODulator
AC	Alternating Current	MRS	Motor Reverse
ACC	Automatic Color Control	NG	Noise Gate
A/C	Audio and Control	NICAM	Near Instantaneous Compand Audio
ADJ	ADJust (ment)		Multiplex
AFC	Automatic Frequency Control	NON-LIN	NON-LINear
AFT	Automatic Fine Tuning	N.T.S.C.	National Television System Committee
AGC	Automatic Gain Control	OSC	OSCillator
AH	Audio Head	PAL	Phase Alternation by Line
AL	ALways (voltage)	PB	Play Back
ALC	Automatic Level Control	PCB (P.C.B)	Printed Circuit Board
A-SW.P	Audio SWitching Pulse	P-COM	Phase-COMparator
A-MUTE	Audio MUTE	P DOWN	Power DOWN
ANT	ANTenna	PG	Pulse Generator
APC	Automatic Phase Control	P.I.P	Picture In Picture
ASSY	ASSEMBly	PL, PLG	PLunger (PLunGer)
BAL	BALance	PRG (PGM)	PRoGram (ProGraM)
B DOWN	Break DOWN	PU	Pick UP (head, pulse)
BGP	Burst Gate Pulse	PWR	PoWeR
BLK	BLock or BLack	Q	Quality factor
BPF	Band Pass Filter	R	Right
BU	Back Up (voltage)	RAM	Random Access Memory
B/W	Black and White	REC	RECORD
C	Chroma or Color	REF	REference
CCD	Charge Coupled Device	REF-V	REference Vertical signal
CCIR	Comité Consultatif International des	REG	REGulator
	Radio communications	REV (REvW)	REview (REvieW)
CH (ch)	CHannel (channel)	REW	REWind
CLK	CLOCK	RF	Radio Frequency
CM	Capstan Motor	ROM	Read Only Memory
CN	CoNnector	R.S SW	Record-Safety SWitch
COMP	COMParator	RST (RES)	ReSet (RESet)
CSW	Cassette SWitch	RVS	ReVerSe
CSYNC	Composite SYNC	S	Sensor, Shield
CTL	ConTrol	SAW	Surface Acoustic Wave
CUE	CUE	SC	SimulCast
DAC	Digital to Analog Converter	S CLK	Serial CLock
DC	Direct Current	SECAM	SÉquentiel Couleur À Mémoire
DEMODO	DEMODulator	S & H	Sample and Hold
DET	DETEct (DETEctor)	SLP	Super Long Play
DL	Delay Line	SP	Standard Play
DM	Drum Motor	SPD	SPeeD
DOC	Drop Out Compensator	SRP	Supply Reel Pulse
D.P.E	Drum Phase Error	SRV	SeRVo
D.PG	Drum Pulse Generator	SOW	Sync On Word
EE	Electronic to Electronic	STBY	STandBY
EF	Emitter Follower	S.VHS	Super VHS
EMPHA	EMPHAsis	SW	SWitch
ENV	ENVELOpe	SW'NG	SWitchiNG
EP	Extended Play	SWP	SWitching Pulse
EP ROM	Erasable Programmable ROM	SYNC	SYNChronize
EQ	EQUALizer	T-AUDIO	Tuner AUDIO
FE	Full track Erase	TPZ (TRAPE)	TraPeZoid (TRAPEzoid)
FF	Flip-Flop or Fast Forward	TRK	TRAcking
FG	Frequency Generator	TRP	Take up Reel Pulse
Fig	Figure	T/U	Take Up
FLD	FLUorescent Display	TV	TeleVision
FM	Frequency Modulation	UHF	Ultra High Frequency
Fo	resonance Frequency	UNR	UNRegulated (voltage)
FREQ	FREQuency	V	Vertical or Video
GND	GrouND	VASS	Video Address Search System
H	Horizontal	VCO	Voltage Controlled Oscillator
HP	Horizontal (sync) pulse	VH	Video Head
HPF	High Pass Filter	VHF	Very High Frequency
HQ	High Quality System	VHS	Video Home System
IC	Integrated Circuit	VIF	Video Intermediate Frequency
ID	IDentification	VISS	Video Index Search System
IDL	IDLe (Voltage)	VJ	Video Judge
IMS	Interactive Monitor System	VM	Voltage for Memory
INS	INSert	VOB	Video On Blank
INV	INVerter	VOW	Video On Word
L	Left	VP	Vertical (sync) Pulse
LED	Light Emitting Diode	VPS	Video Program System
LIM	LIMitter	VPT	Video Programming by video Text
LM	Loading Motor	VT	Voltage for Tuning
LM STP	Loading Motor STop	WHT	WHITe
LP	Long Play	Y	Luminance
LPF	Low Pass Filter	2H	2 Hour (SP)
ME-SECAM	Middle East SECAM	4H	4 Hour (LP)
MI-COM	Micro COMputer	6H	6 Hour (SLP/EP)
MM	Mono-stayble Multi		

AKAI

MODEL **VS-X400**_{EGN}

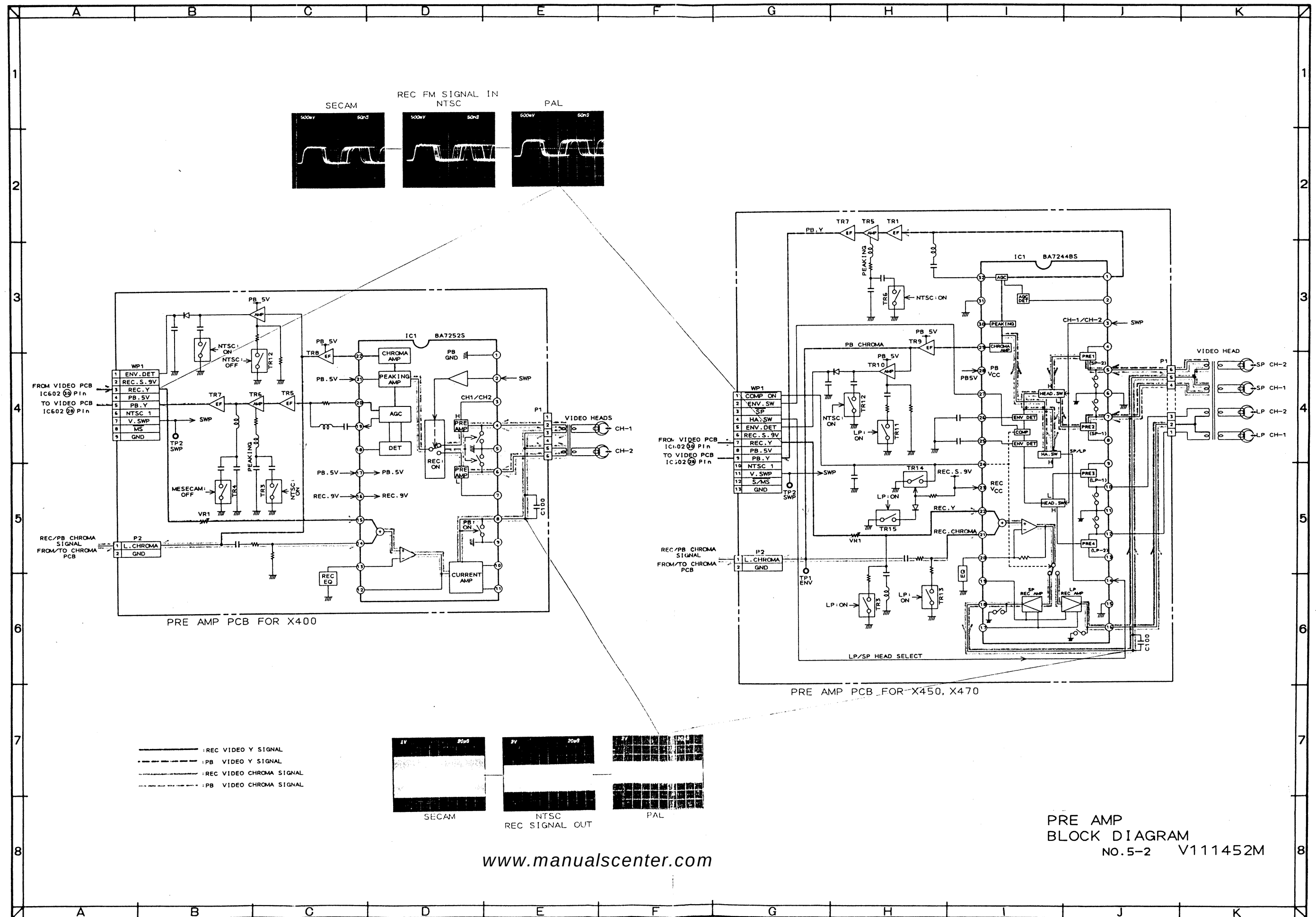
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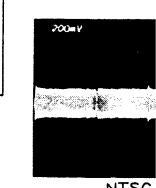
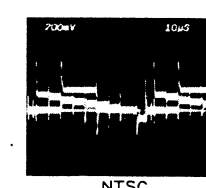
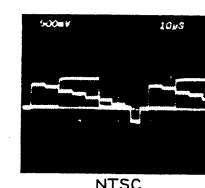
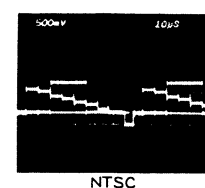
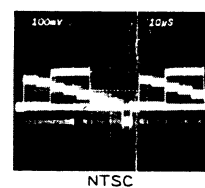
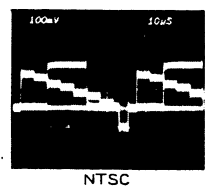
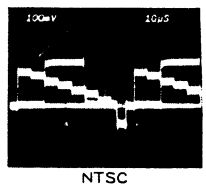
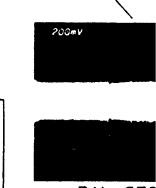
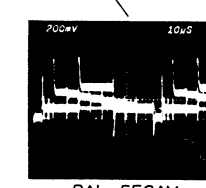
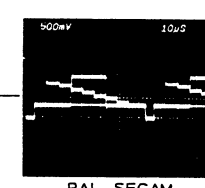
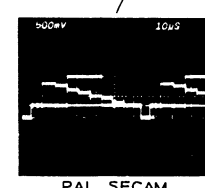
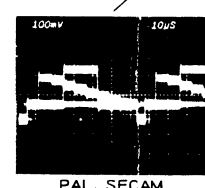
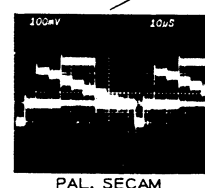
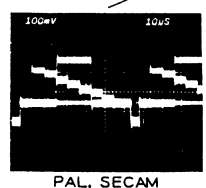
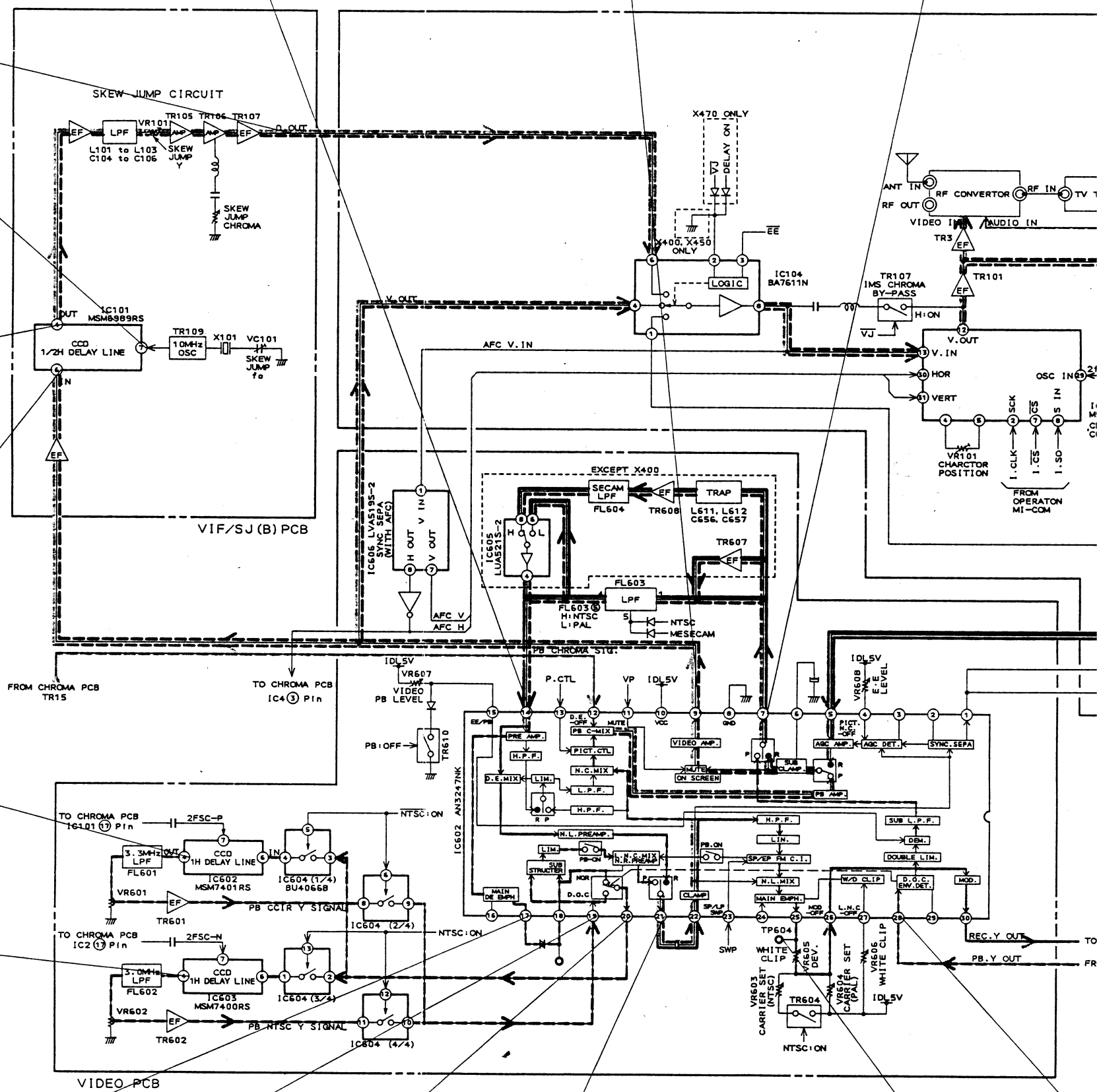
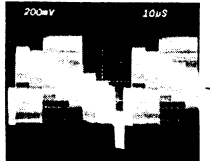
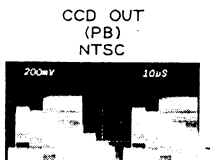
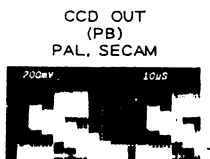
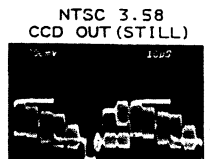
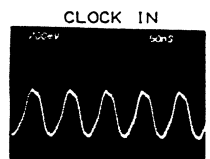
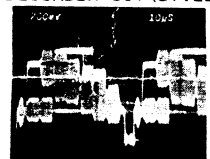
MODEL **VS-X470**_{EGN}

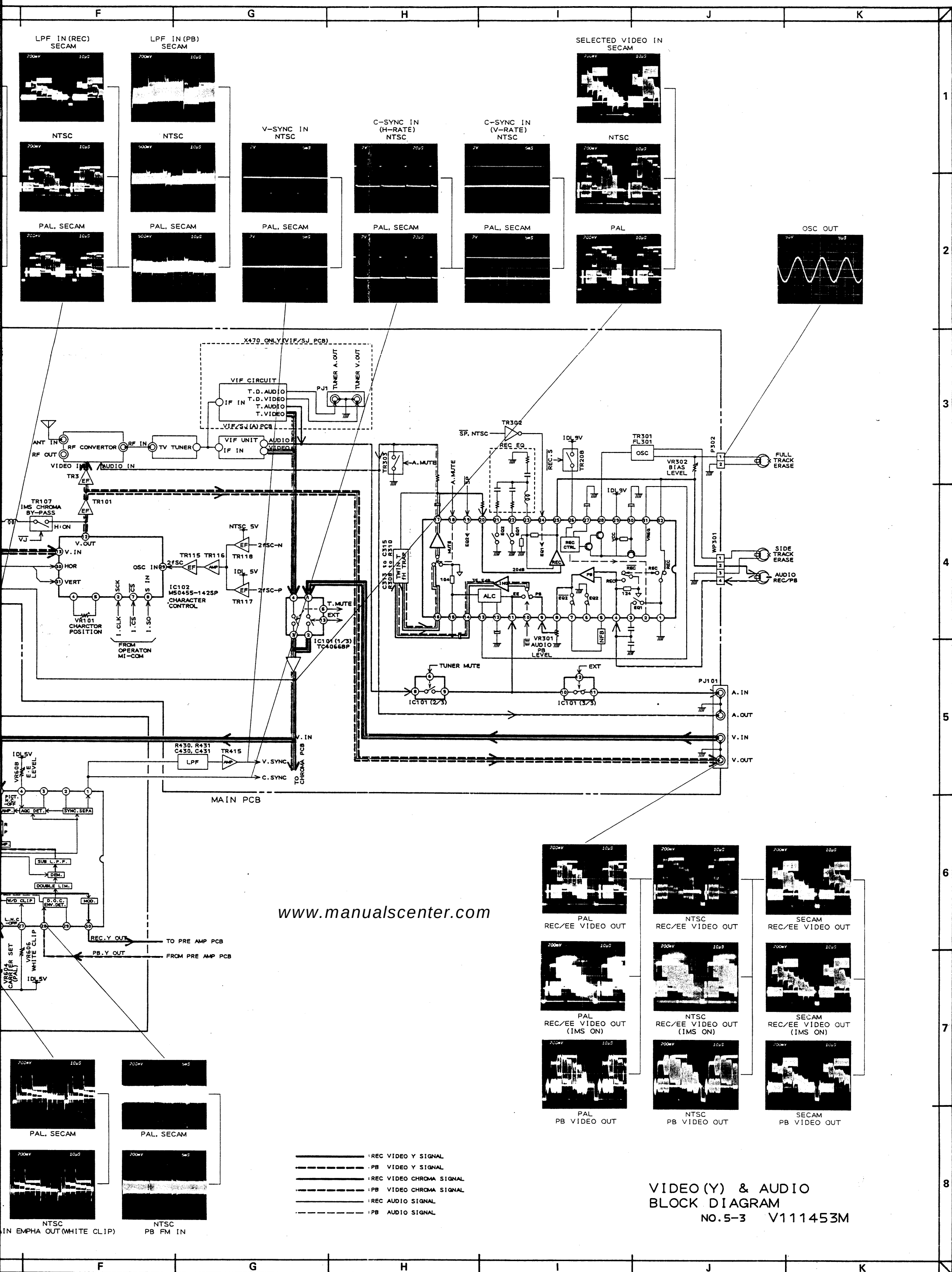
SCHEMATIC DIAGRAMS AND PC BOARDS

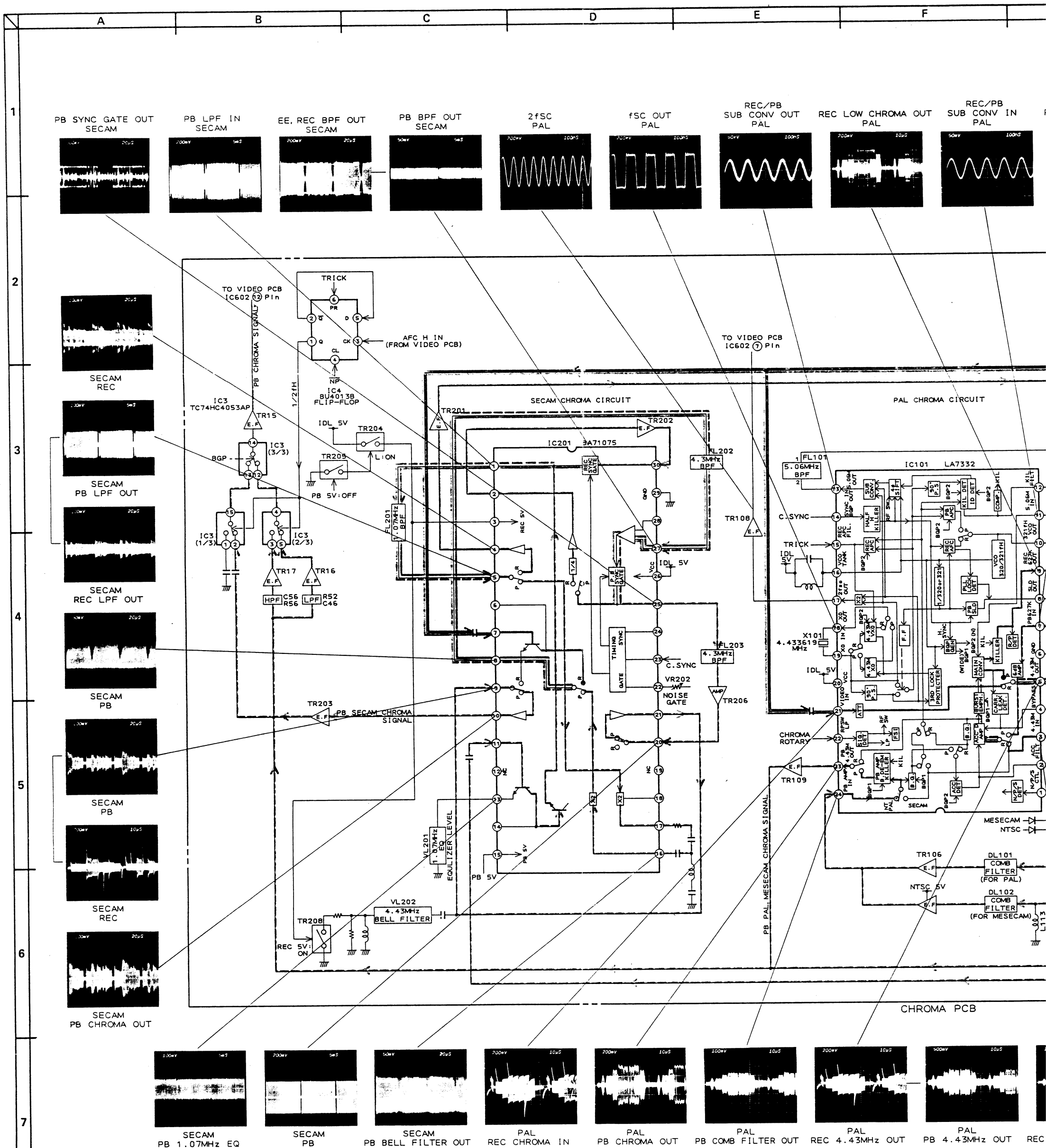
TABLE OF CONTENTS

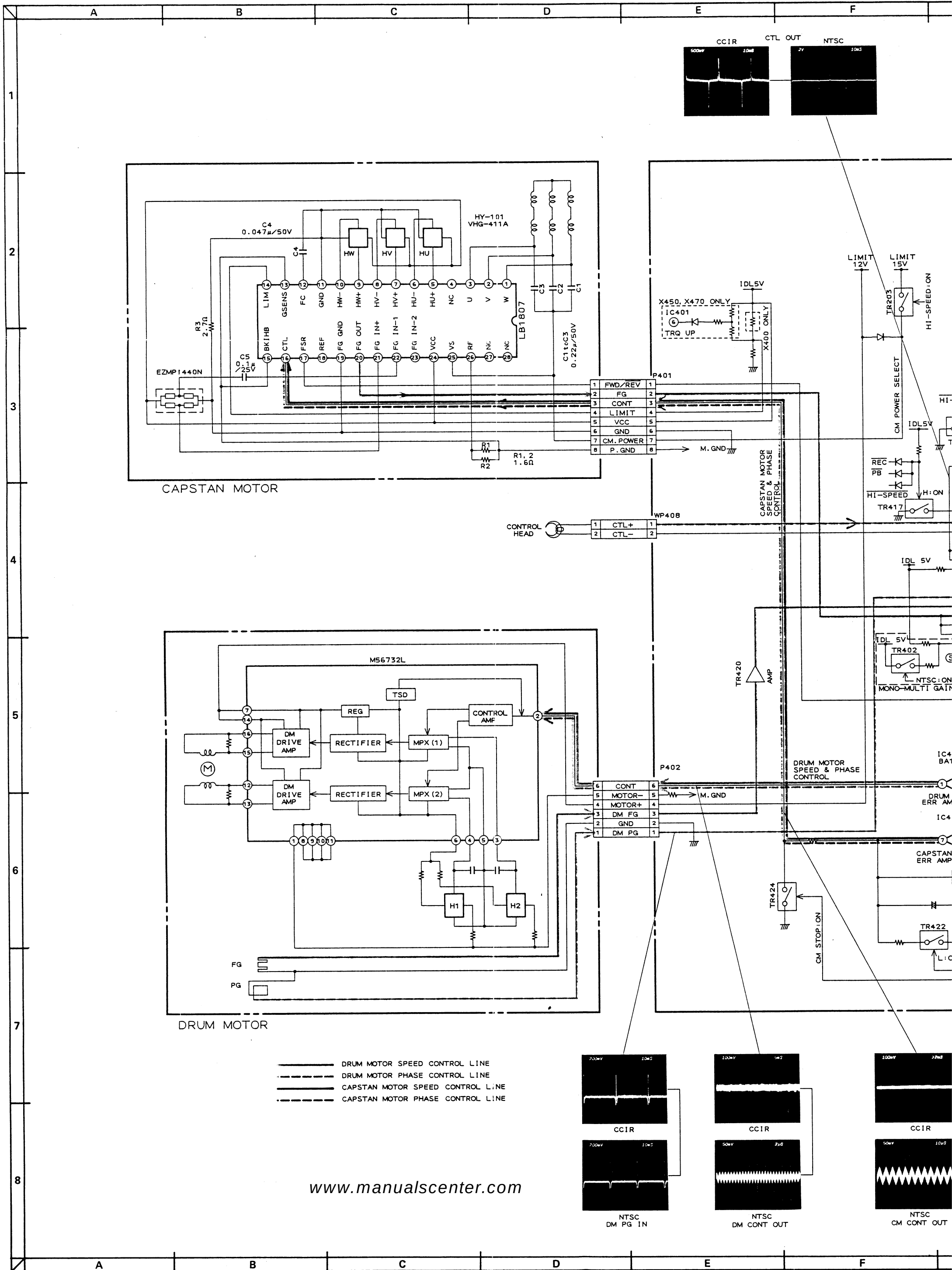
I. BLOCK DIAGRAMS	
1. OPERATION & SYSCON	3
2. PRE AMP	4
3. VIDEO(Y) & AUDIO	5
4. VIDEO (CHROMA)	6
5. SERVO	7
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2. POWER SUPPLY	9
3. MAIN (1/2)	10
4. MAIN (2/2)	12
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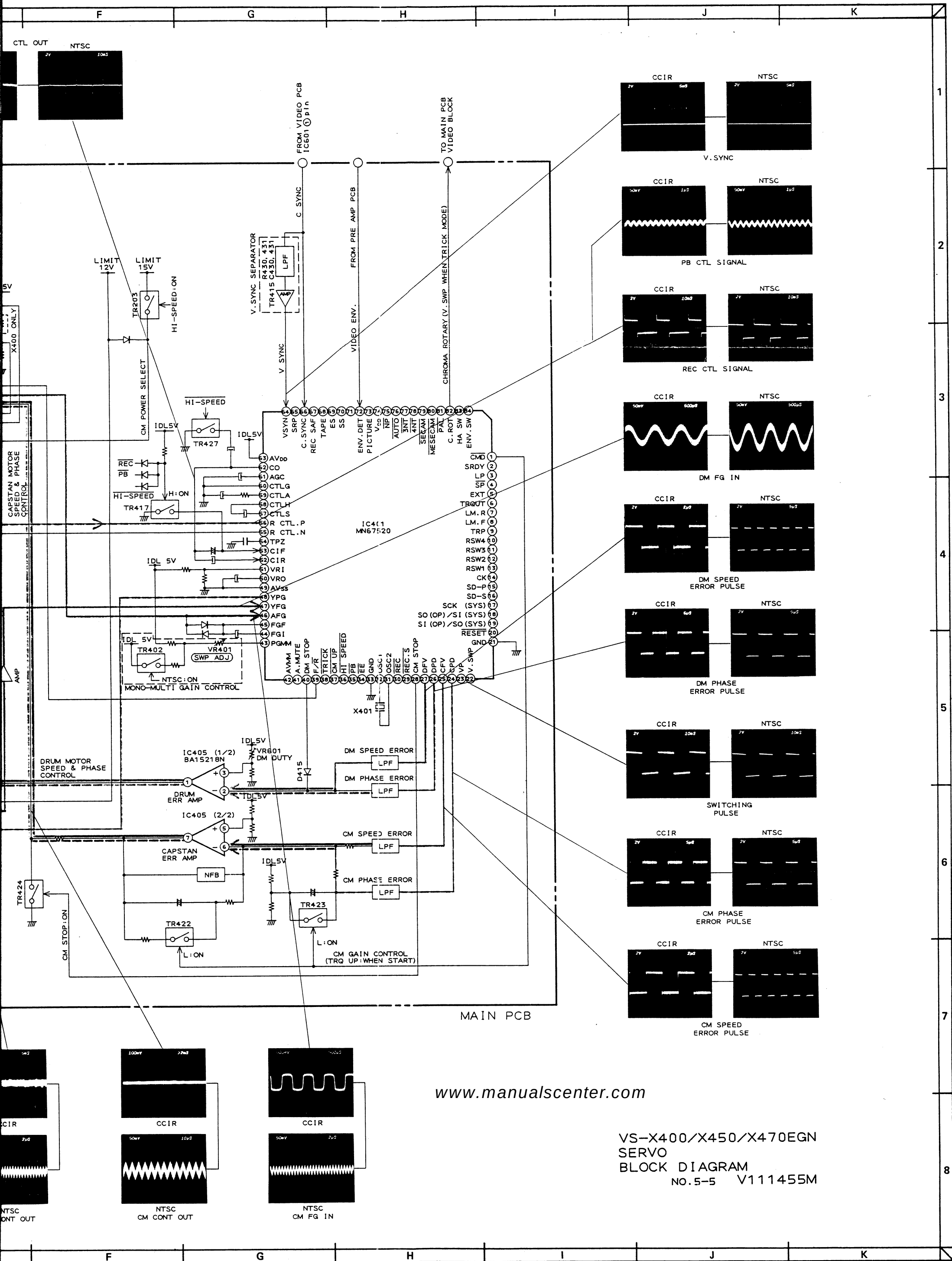


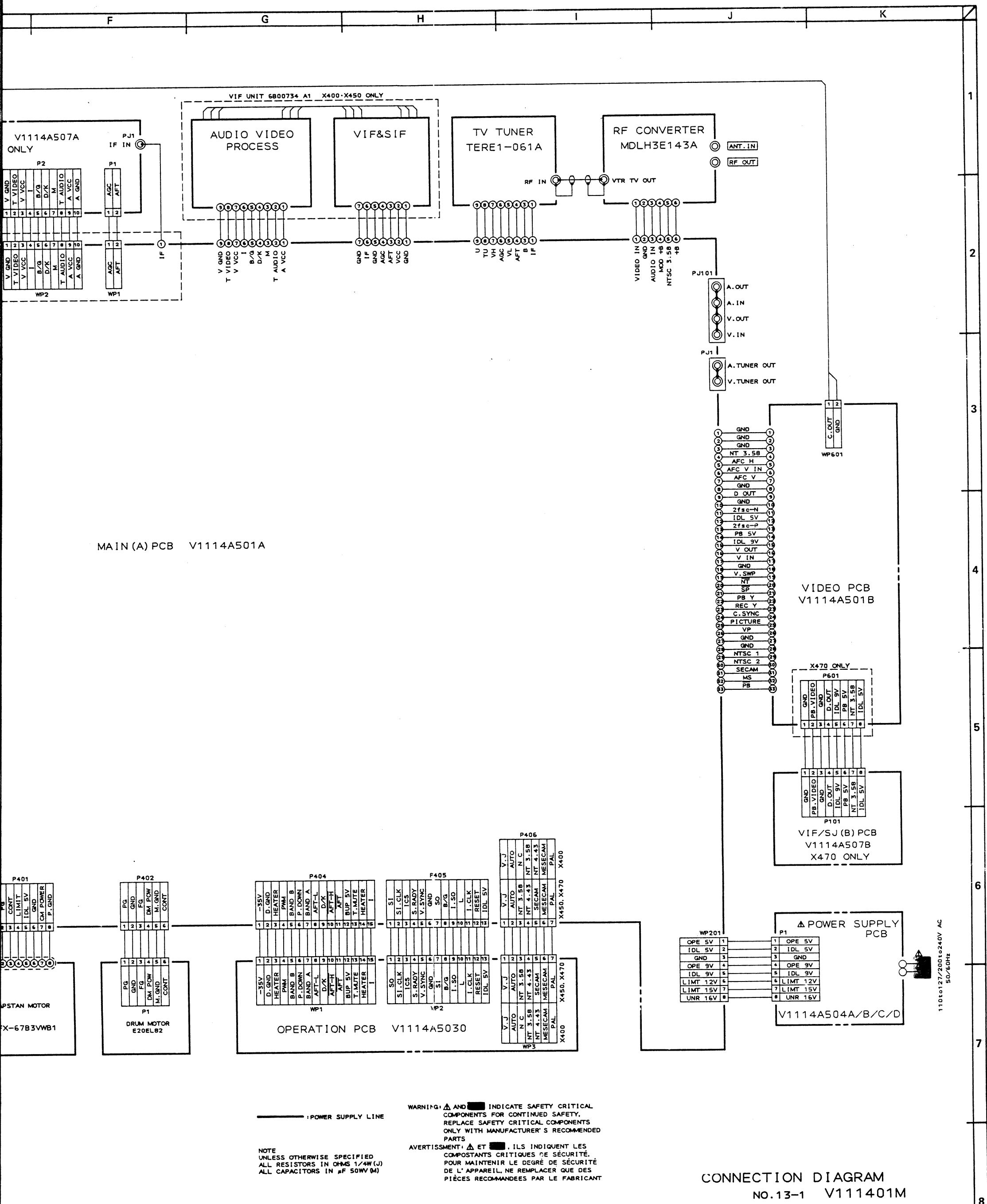


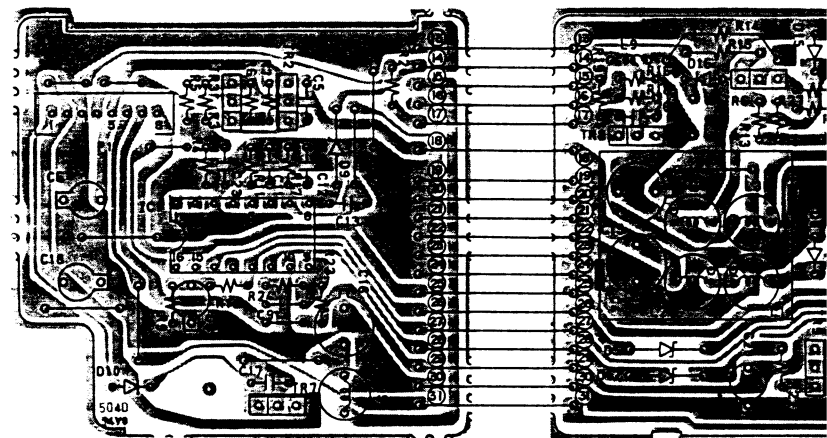
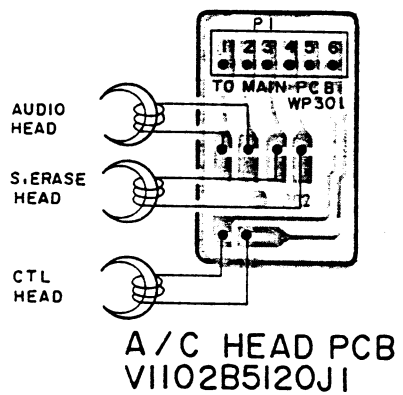






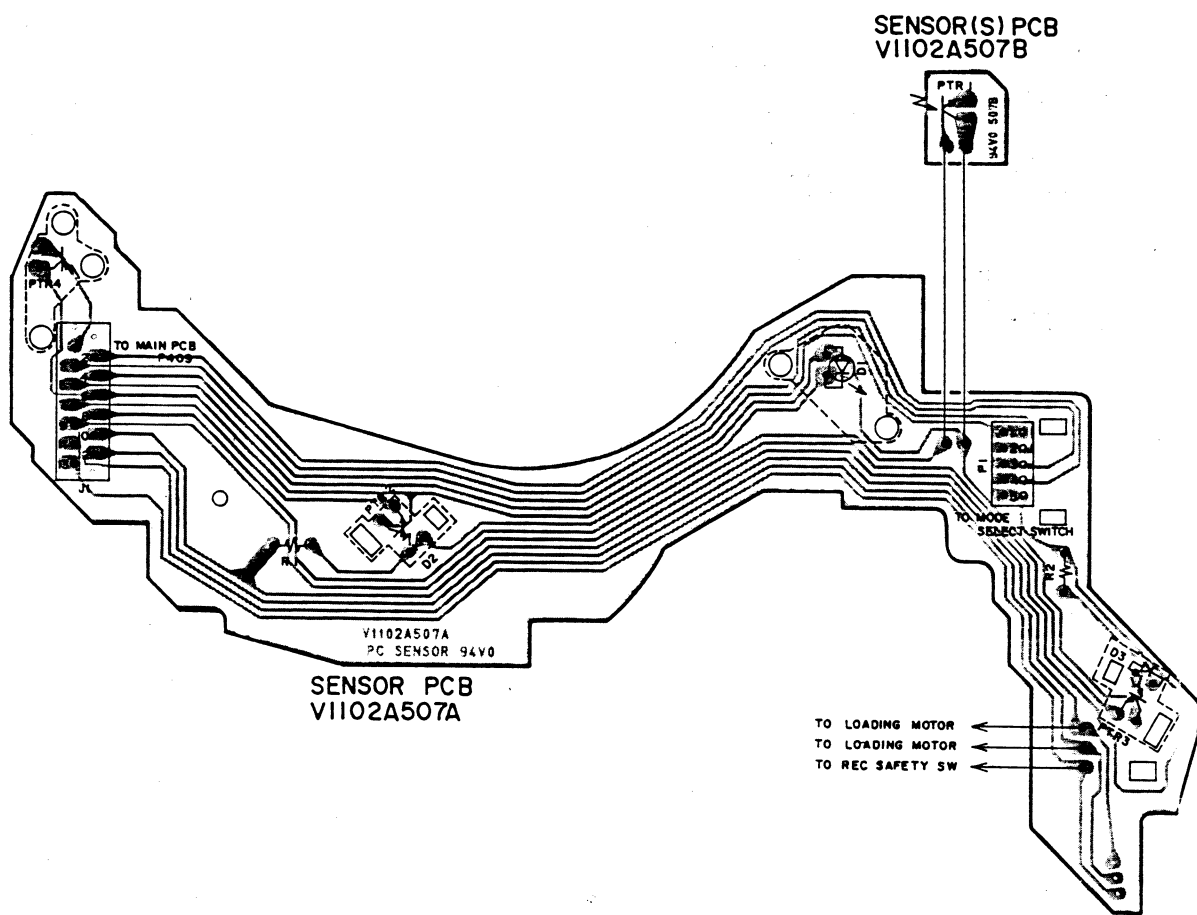




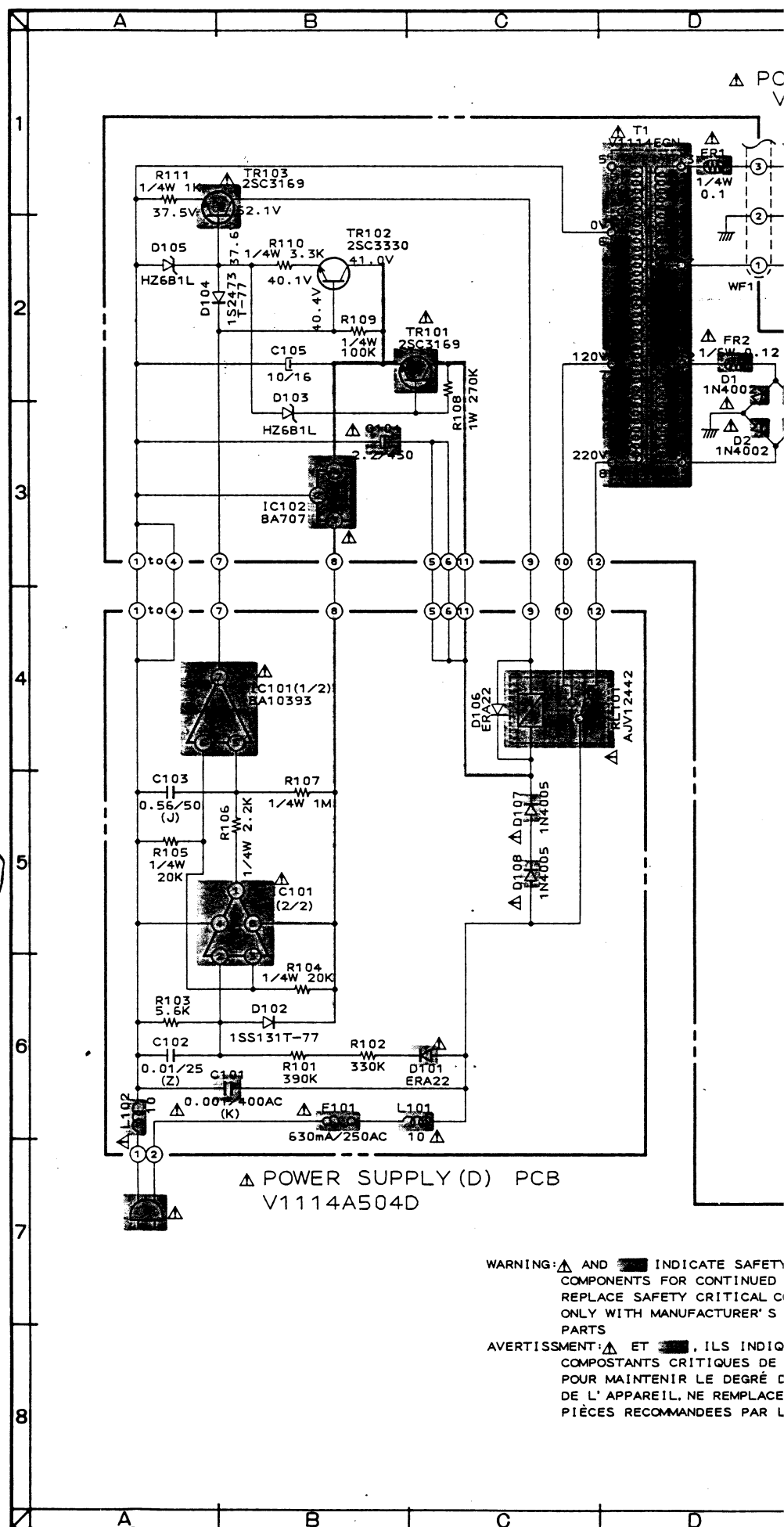


POWER SUPPLY (B) PCB
VII14A504BJ1

WARNING: Δ INDICATES SAFETY CRITICAL COMPONENTS
REPLACE SAFETY CRITICAL COMPONENTS ONLY
WITH RECOMMENDED PARTS
AVERTISSEMENT: Δ IL INDIQUE LES COMPOSANTS CRITIQUES
POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL,
NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE



SENSOR(S) PCB
VII02A507B

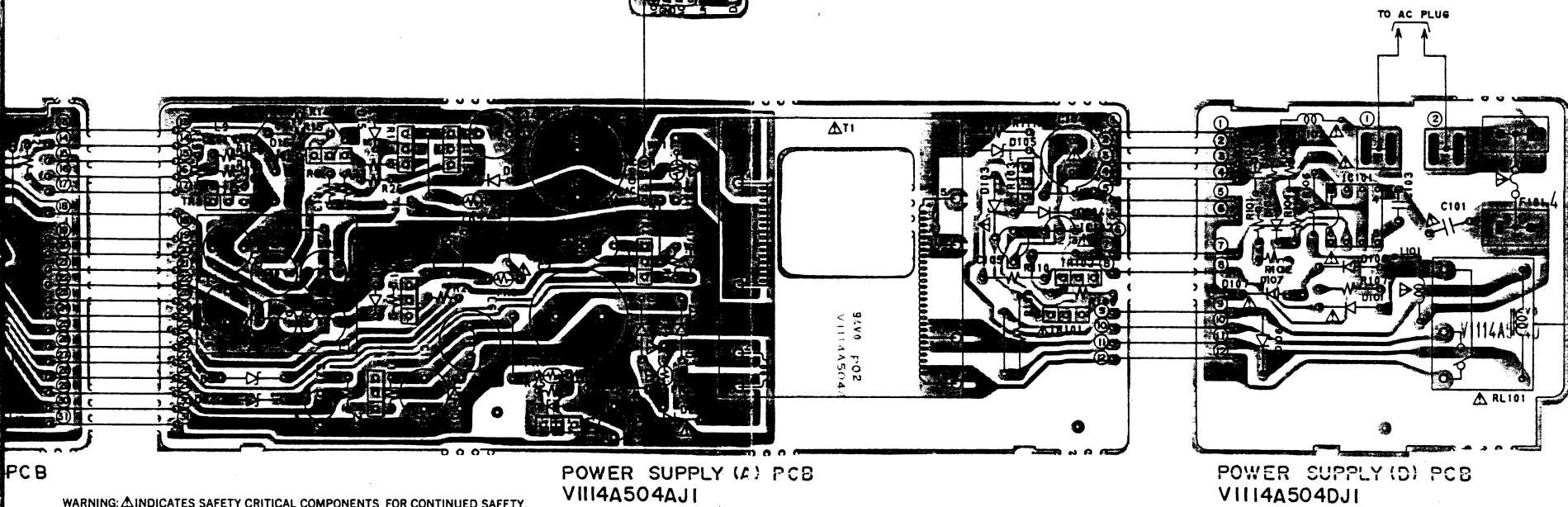


WARNING: Δ AND $\blacksquare$ INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED
REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S
RECOMMENDED PARTS
AVERTISSEMENT: Δ ET $\blacksquare$ ILS INDIQUENT LES COMPOSANTS CRITIQUES
POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL. NE REMPLACER
QUE DES PIÈCES RECOMMANDÉES PAR LE

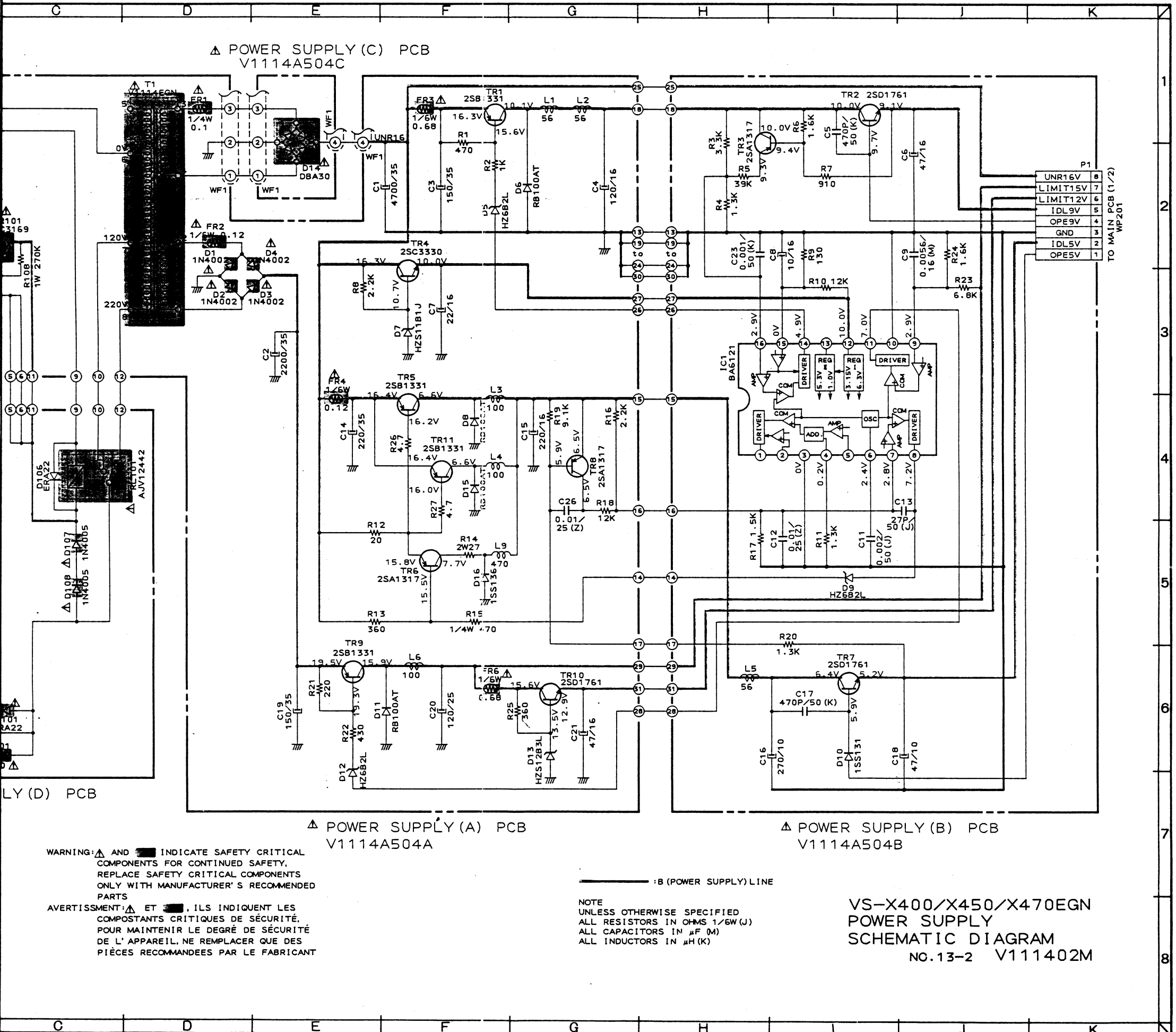
POWER SUPPLY (C) PCB
VIII4A504CJI

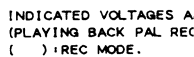


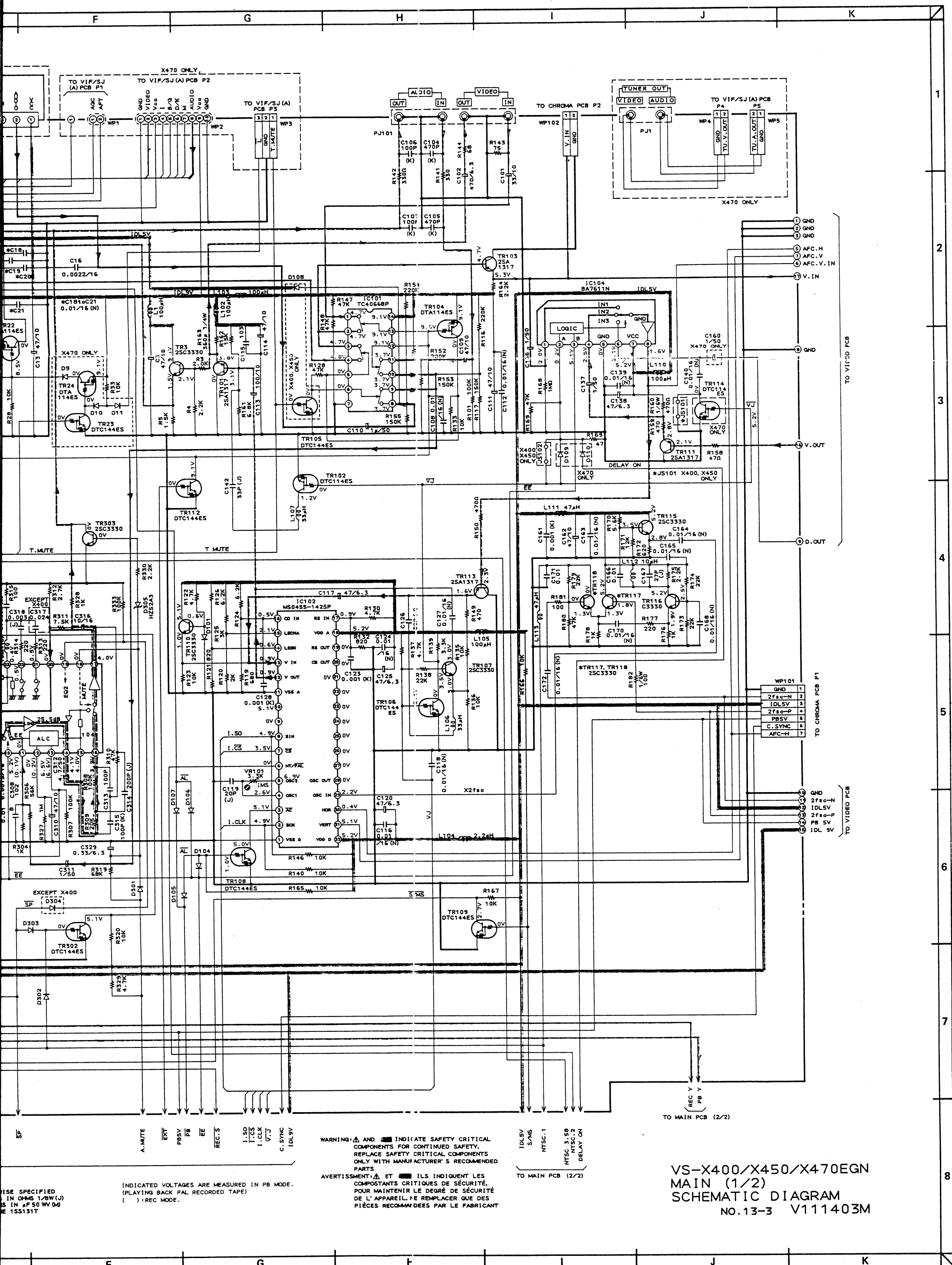
www.manualscenter.com



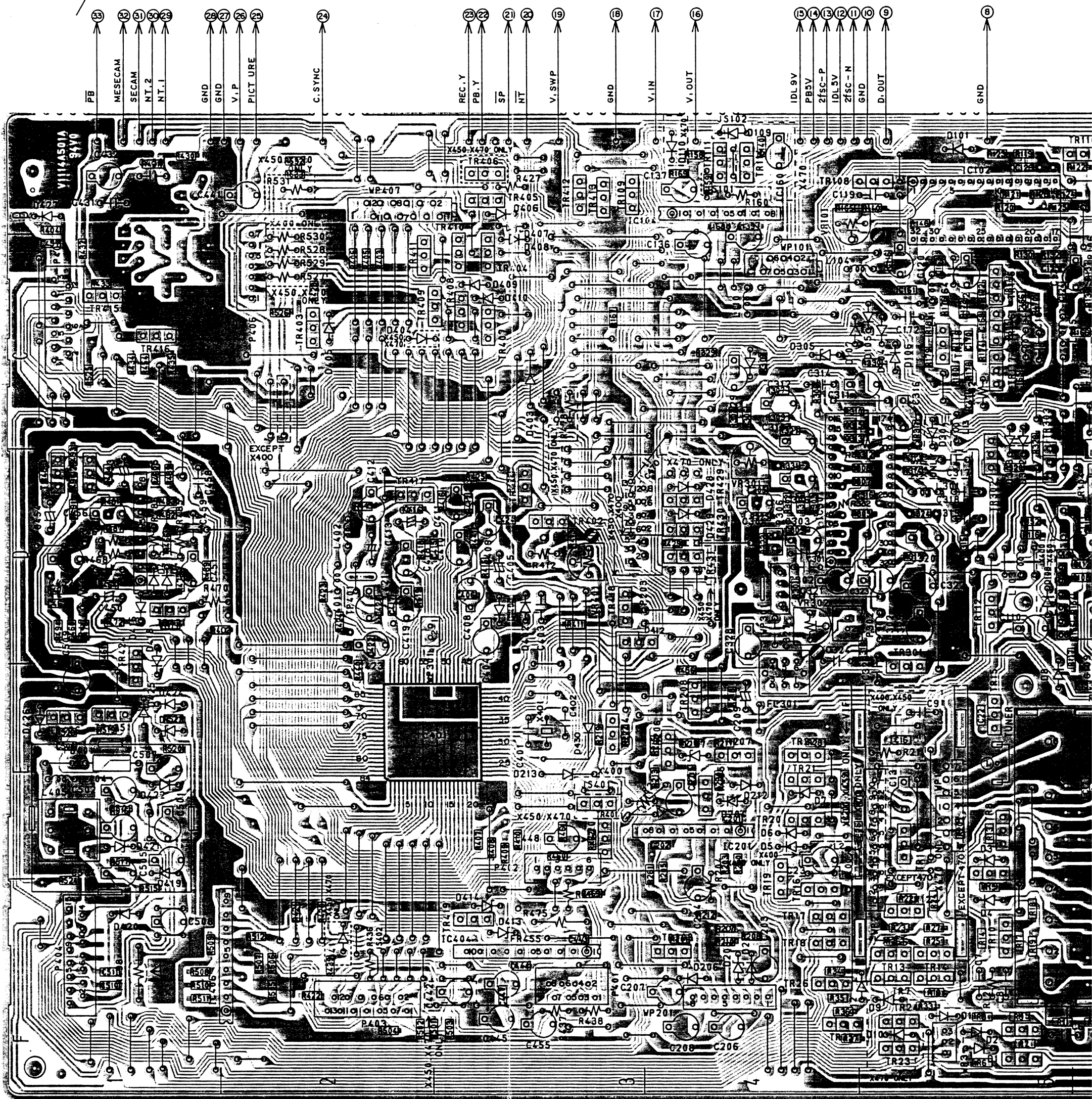
WARNING: Δ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY.
REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S
RECOMMENDED PARTS
AVERTISSEMENT: Δ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ.
POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL,
NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT



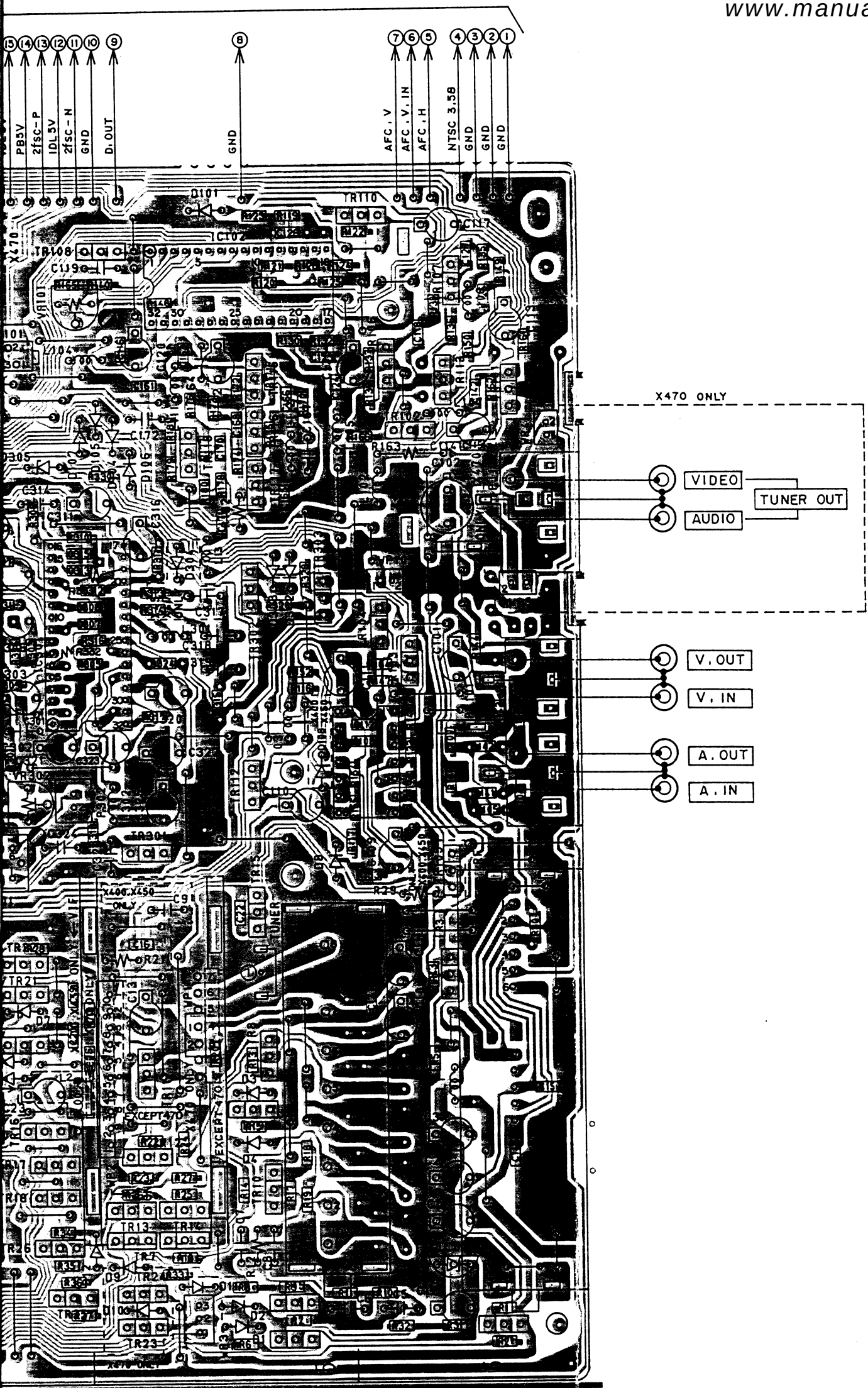




TO VIDEO PCB

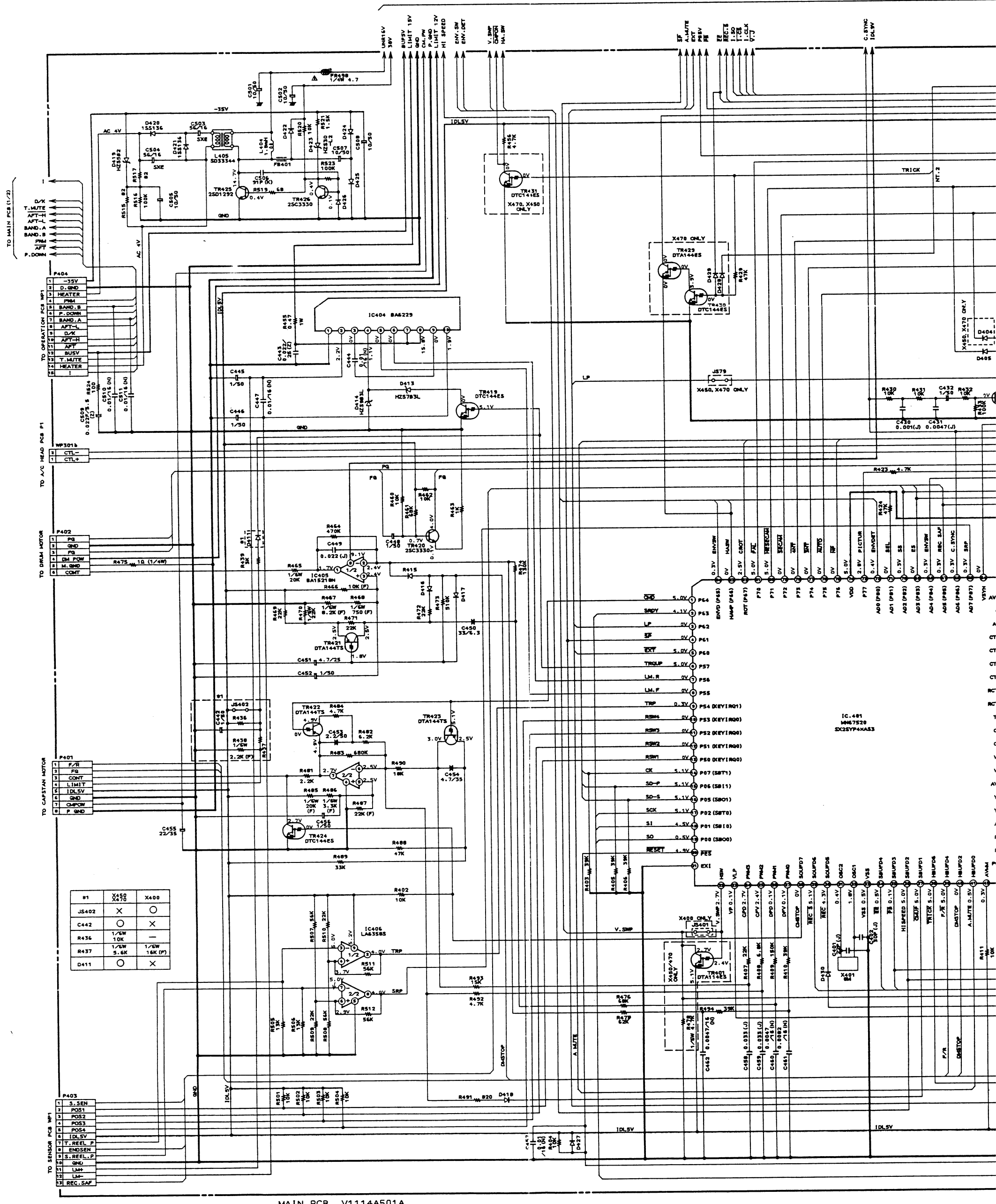


MAIN PCB VIII4A501AJ

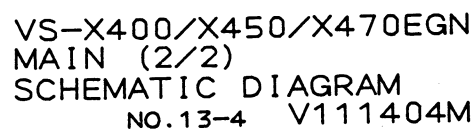


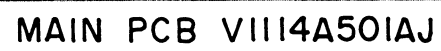
PRINCIPAL PARTS LOCATION

ICS	
IC101.....D5,6	TR26.....F4
IC102.....B5	TR101.....C6
IC104.....B4	TR102.....C6
IC201.....E4	TR103.....D6
IC301.....C,D4,5	TR104.....D6
IC401.....E2,3	TR105.....D,E6
IC404.....F3	TR106.....C6
IC405.....D1	TR107.....B6
IC406.....F2	TR108.....B4,5
WP	
WP1.....E5	TR109.....B3
WP2.....E,F5	TR110.....B6
WP3.....F5	TR111.....B4
WP4.....C6	TR112.....D5
WP5.....C,D6	TR113.....C6
WP101.....C4	TR114.....B4
WP102.....C,D6	TR115.....C5
WP201.....F4	TR116.....C5
WP301a.....D4	TR117.....C5
WP301b.....D2,3	TR118.....C5
WP407.....B2,3	TR203.....F4
CONNECTORS	
P203.....D3,4	TR204.....E3
P302.....D4	TR205.....E3
P306.....D4	TR206.....E4
P401.....F3	TR207.....E4
P402.....E3	TR208.....E4
P403.....F2	TR301.....D,E5
P404.....F1	TR302.....C,D5
P405.....C1	TR303.....C,D5
P406.....B,C2	TR401.....E3
TRANSISTORS	
TR1.....F6	TR402.....D3
TR3.....E6	TR403.....C2
TR4.....F5	TR404.....C3
TR5.....F5	TR405.....B3
TR6.....F5	TR406.....B3
TR7.....F5	TR407.....C3
TR8.....E5	TR408.....C3
TR9.....E5	TR409.....C3
TR10.....F5	TR410.....C3
TR11.....E5	TR411.....C2,3
TR12.....F5	TR412.....B3
TR13.....F5	TR413.....B3
TR14.....F5	TR414.....D3
TR15.....E5	TR415.....C1
TR16.....F4	TR416.....C1
TR17.....F4	TR417.....D2,3
TR18.....F4	TR418.....D3
TR19.....E,F4	TR419.....F3
TR20.....E4	TR420.....E3
TR21.....E4	TR421.....D1
TR22.....E4	TR422.....D1
TR23.....F5	TR423.....D1
TR24.....F5	TR424.....D,E1
TR25.....F4,5	TR425.....E1
	TR426.....E1
	TR429.....D4
	TR430.....D4
	TR431.....D4



INDICATED VOLTAGES ARE MEASURED IN PB MODE.
(PLAYING BACK PAL REC RECORDED TAPE)





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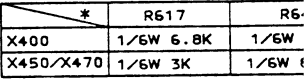
ICS
IC101.....D5,6
IC102.....B5
IC104.....B4
IC201.....E4
IC301.....C,D4,5
IC401.....E2,3
IC404.....F3
IC405.....D1
IC406.....F2

WP
WP1.....E5
WP2.....E,F5
WP3.....F5
WP4.....C6
WP5.....C,D6
WP101.....C4
WP102.....C,D6
WP201.....F4
WP301a.....D4
WP301b.....D2,3
WP407.....B2,3

CONNECTORS
P203.....D3,4
P302.....D4
P306.....D4
P401.....F3
P402.....E3
P403.....F2
P404.....F1
P405.....C1
P406.....B,C2

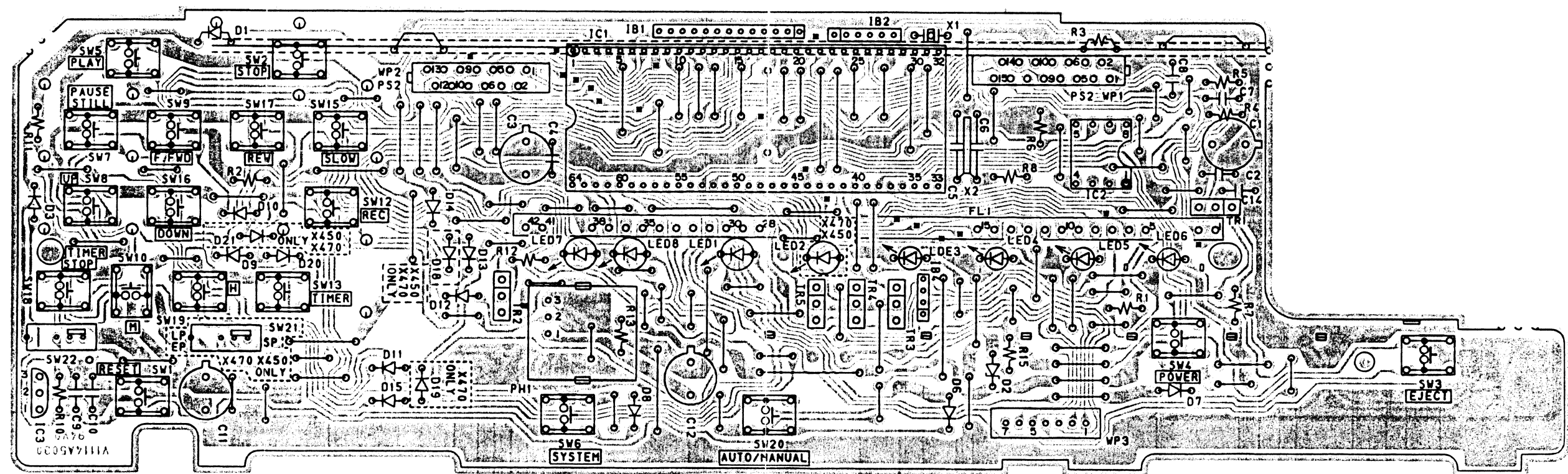
TRANSISTORS
TR1.....F6
TR3.....E6
TR4.....F5
TR5.....F5
TR6.....F5
TR7.....F5
TR8.....E5
TR9.....E5
TR10.....F5
TR11.....E5
TR12.....F5
TR13.....F5
TR14.....F5
TR15.....E5
TR16.....F4
TR17.....F4
TR18.....F4
TR19.....E,F4
TR20.....E4
TR21.....E4
TR22.....E4
TR23.....F5
TR24.....F5
TR25.....F4,5
TR26.....F4
TR101.....C6
TR102.....C6
TR103.....D6
TR104.....D6
TR105.....D,E6
TR106.....C6
TR107.....B6
TR108.....B4,5
TR109.....B3
TR110.....B6
TR111.....B4
TR112.....D5
TR113.....C6
TR114.....B4
TR115.....C5
TR116.....C5
TR117.....C5
TR118.....C5
TR203.....F4
TR204.....E3
TR205.....E3
TR206.....E4
TR207.....E4
TR208.....E4
TR301.....D,E5
TR302.....C,D5
TR303.....C,D5
TR401.....E3
TR402.....D3
TR403.....C2
TR404.....C3
TR405.....B3
TR406.....B3
TR407.....C3
TR408.....C3
TR409.....C3
TR410.....C3
TR411.....C2,3
TR412.....B3
TR413.....B3
TR414.....D3
TR415.....C1
TR416.....C1
TR417.....D2,3
TR418.....D3
TR419.....F3
TR420.....E3
TR421.....D1
TR422.....D1
TR423.....D1
TR424.....D,E1
TR425.....E1
TR426.....E1
TR429.....D4
TR430.....D4
TR431.....D4

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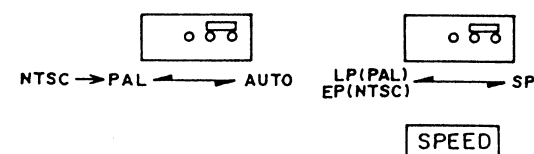


VS-X400/X450/X470EGN
VIDEO
SCHEMATIC DIAGRAM
NO.13-5 V111405M

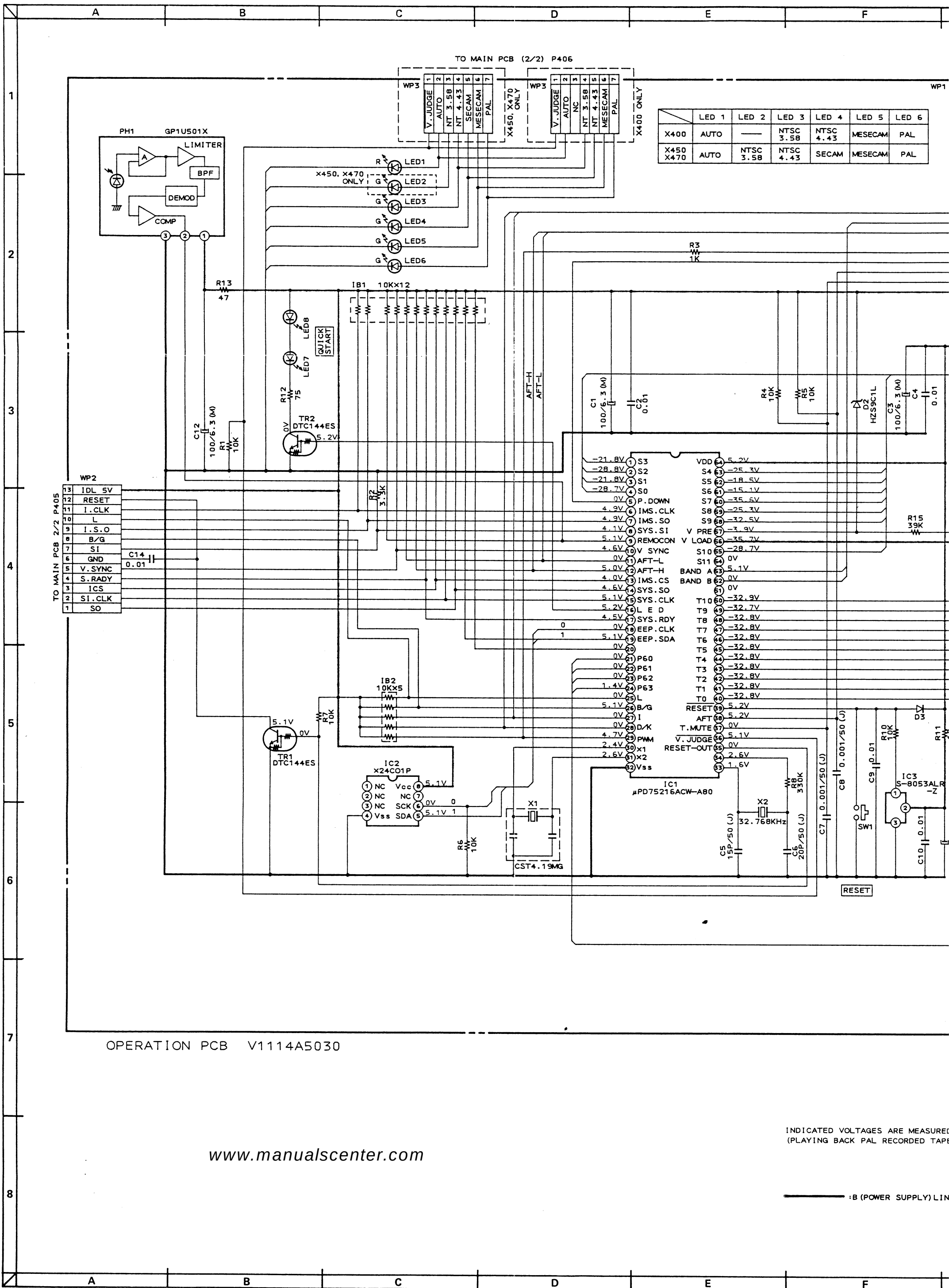
LED MODEL	LED1	LED2	LED3	LED4	LED5	LED6	LED7	LED8
X400	AUTO	---	NTSC3.58	NTSC4.43	MESECAM	PAL	QUICK START	QUICK START
X450/X470	AUTO	NTSC3.58	NTSC4.43	SECAM	MESECAM	PAL	QUICK START	QUICK START

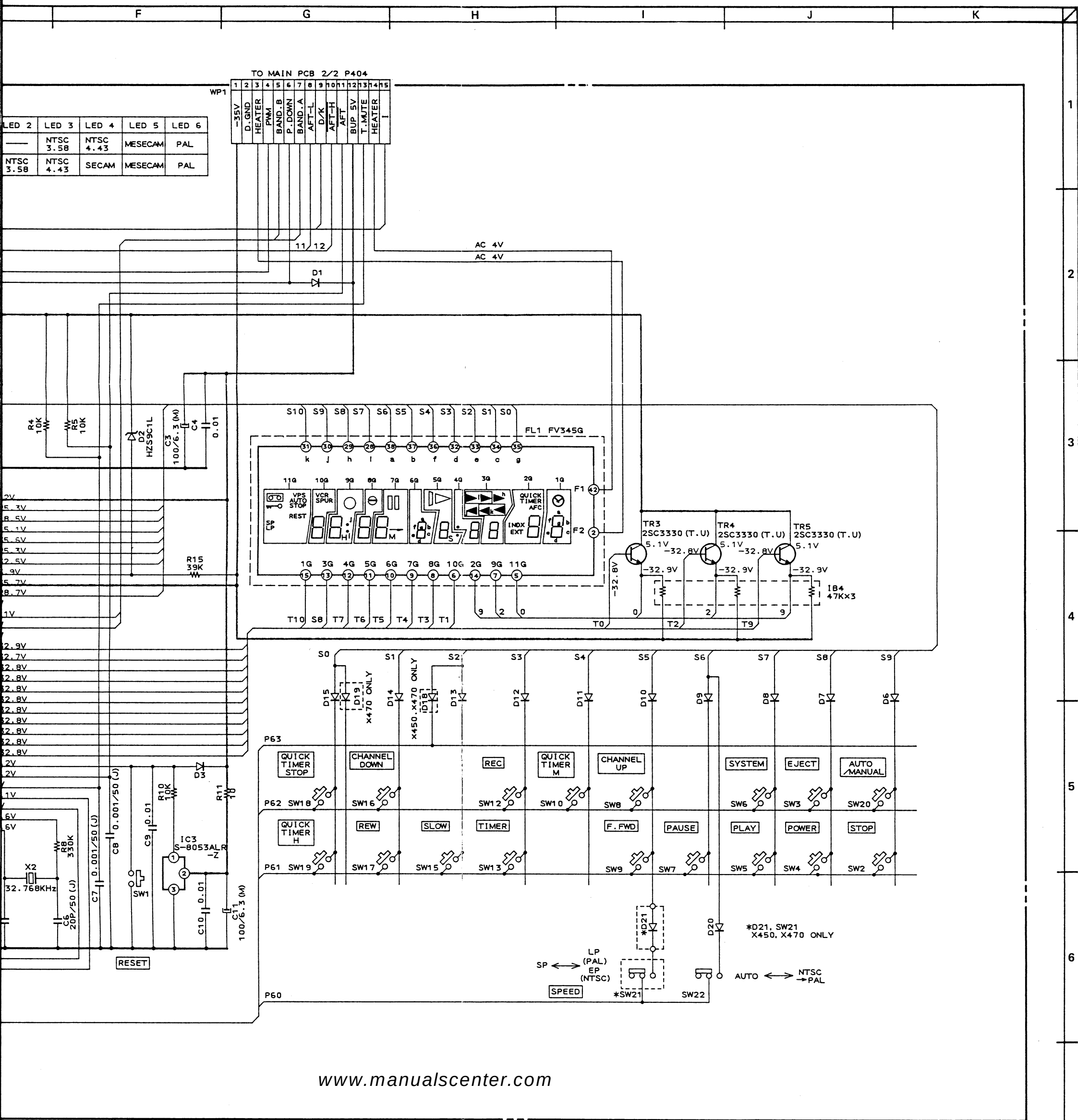


OPERATION PCB VIII4A5030



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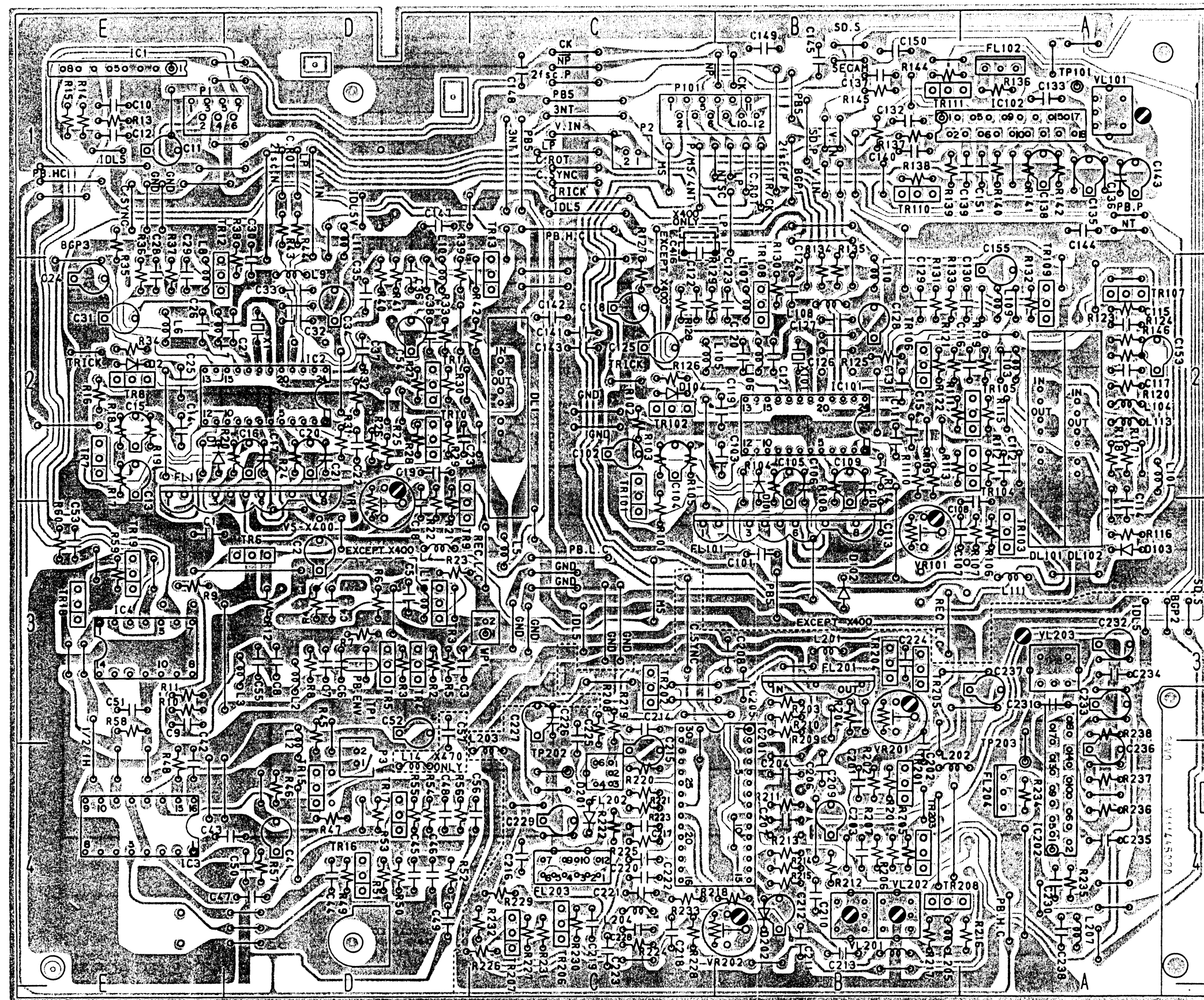
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INDICATED VOLTAGES ARE MEASURED IN PB MODE.
(PLAYING BACK PAL RECORDED TAPE)

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/6W(J)
ALL CAPACITORS IN μF 16WV(N)
ALL DIODES ARE 1SS131T

— :B (POWER SUPPLY) LINE

VS-X400/X450/X470EGN
OPERATION
SCHEMATIC DIAGRAM
NO.13-6 V111406M



CHROMA PCB VIII4A5020

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PRINCIPAL PARTS LOCATION

ICS

IC1.....E1
IC2.....D,E2
IC3.....E4
IC4.....E3
IC101.....B2
IC102.....A,B1
IC201.....B,C3,4
IC202.....A3,4

CONNECTORS

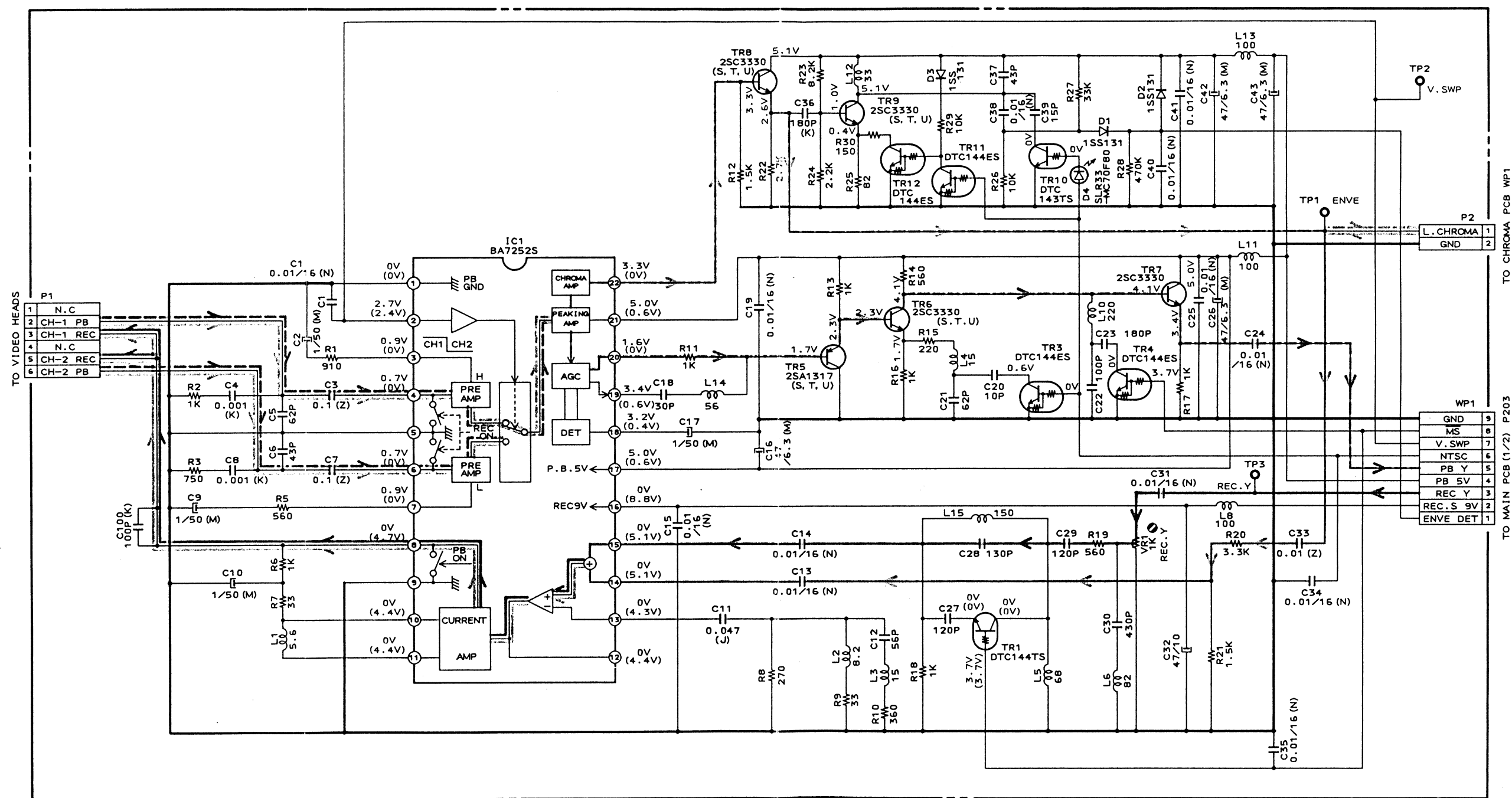
P1.....D,E1
P2.....C1
P3.....D3,4
P101.....B,C1

WP

WP1.....C3

TRANSISTORS

TR3.....D3
TR4.....D3
TR5.....D3
TR6.....D3
TR7.....E2
TR8.....E2
TR9.....C,D2,3
TR10.....D2
TR11.....D2
TR12.....D,E1,2
TR13.....C1,2
TR15.....D4
TR16.....D4
TR17.....D4
TR18.....E3
TR19.....E3
TR101.....C2,3
TR102.....C2
TR103.....A3
TR104.....A2
TR105.....A2
TR106.....B2
TR107.....A2
TR108.....B2
TR109.....A2
TR110.....B1
TR111.....A,B1
TR201.....B4
TR202.....C3
TR203.....B4
TR204.....B3
TR205.....B3
TR206.....C4
TR207.....C4
TR208.....A,B4



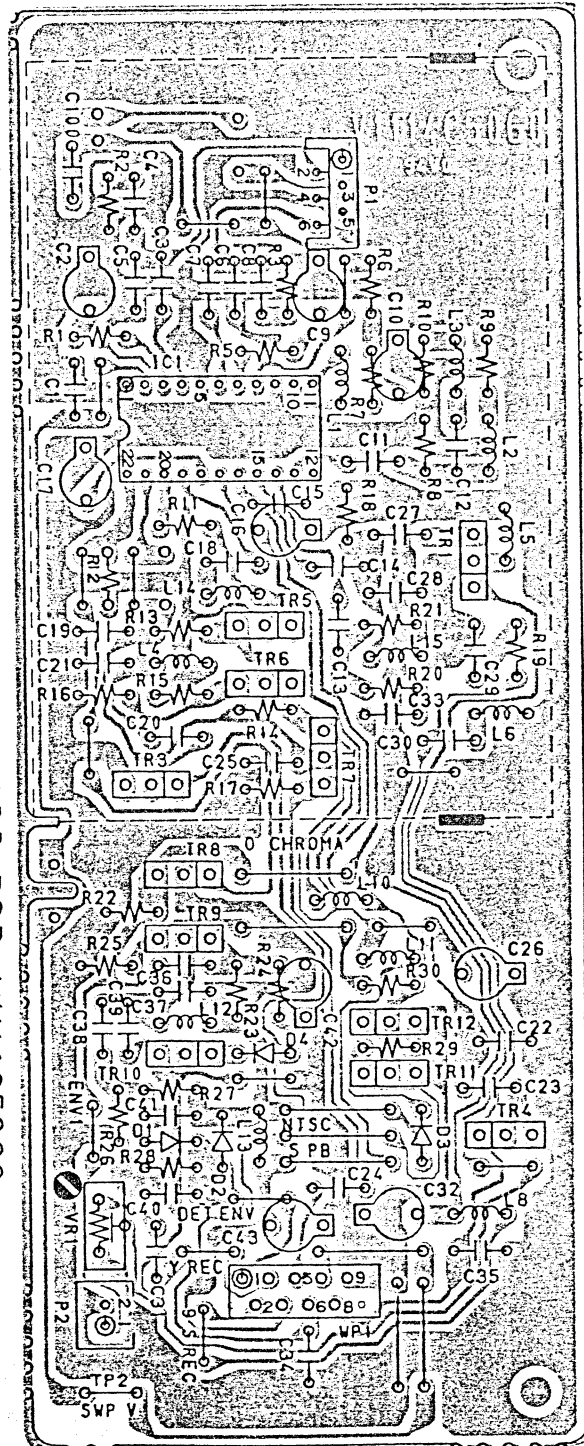
PRE AMP 400 PCB V1114C5060

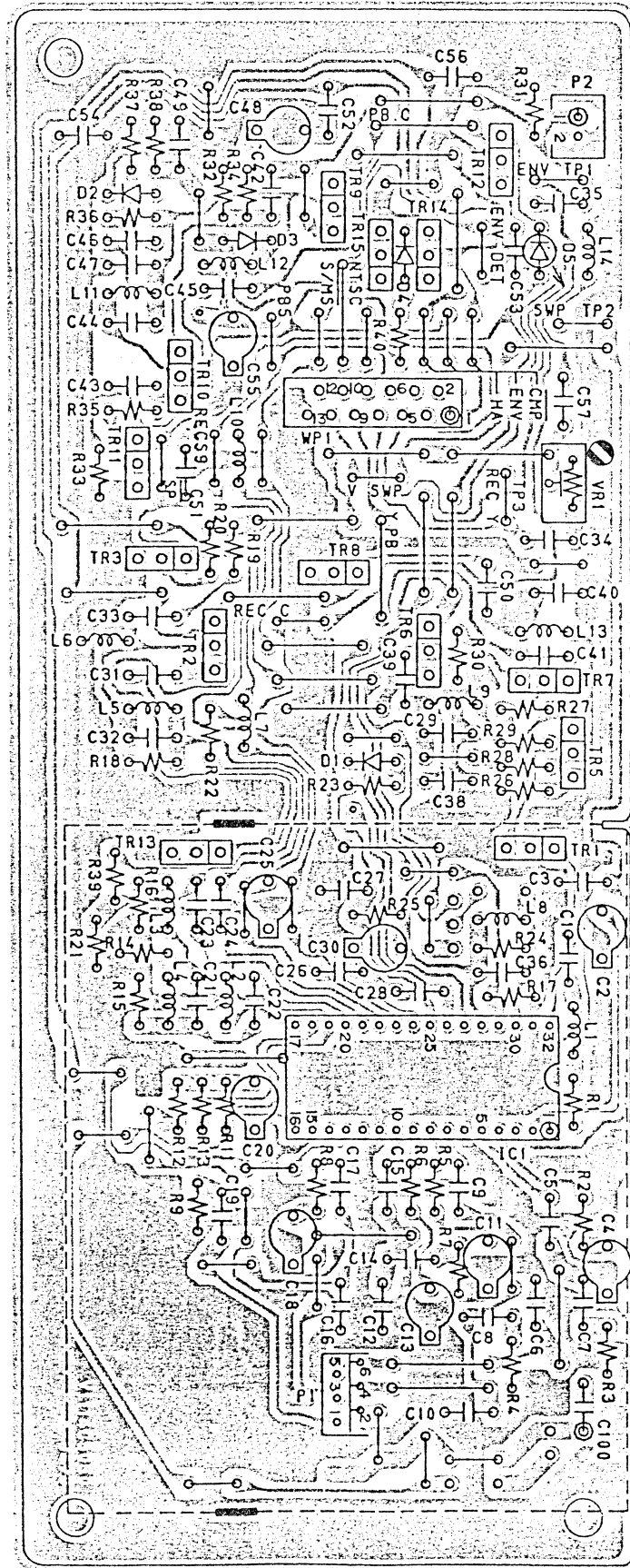
———— : REC Y SIGNAL
 - - - - - : PB Y SIGNAL
 ———— : REC CHROMA SIGNAL
 - - - - - : PB CHROMA SIGNAL

INDICATED VOLTAGES ARE MEASURED IN
 PB MODE.
 () REC MODE.

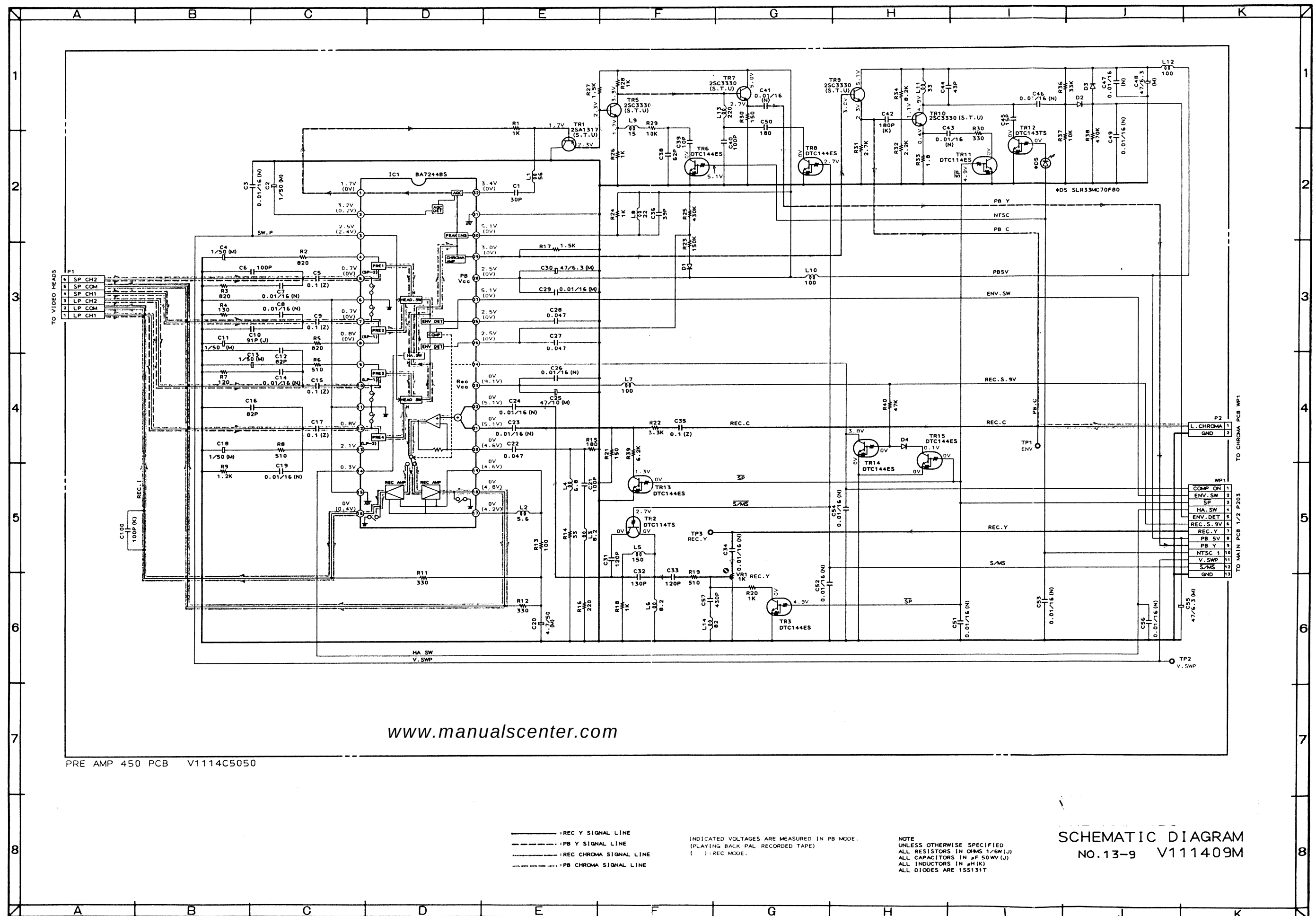
NOTE
 UNLESS OTHERWISE SPECIFIED
 ALL RESISTORS IN OHMS 1/6W(J)
 ALL CAPACITORS IN μ F 50WV(J)
 ALL INDUCTORS IN μ H(K)

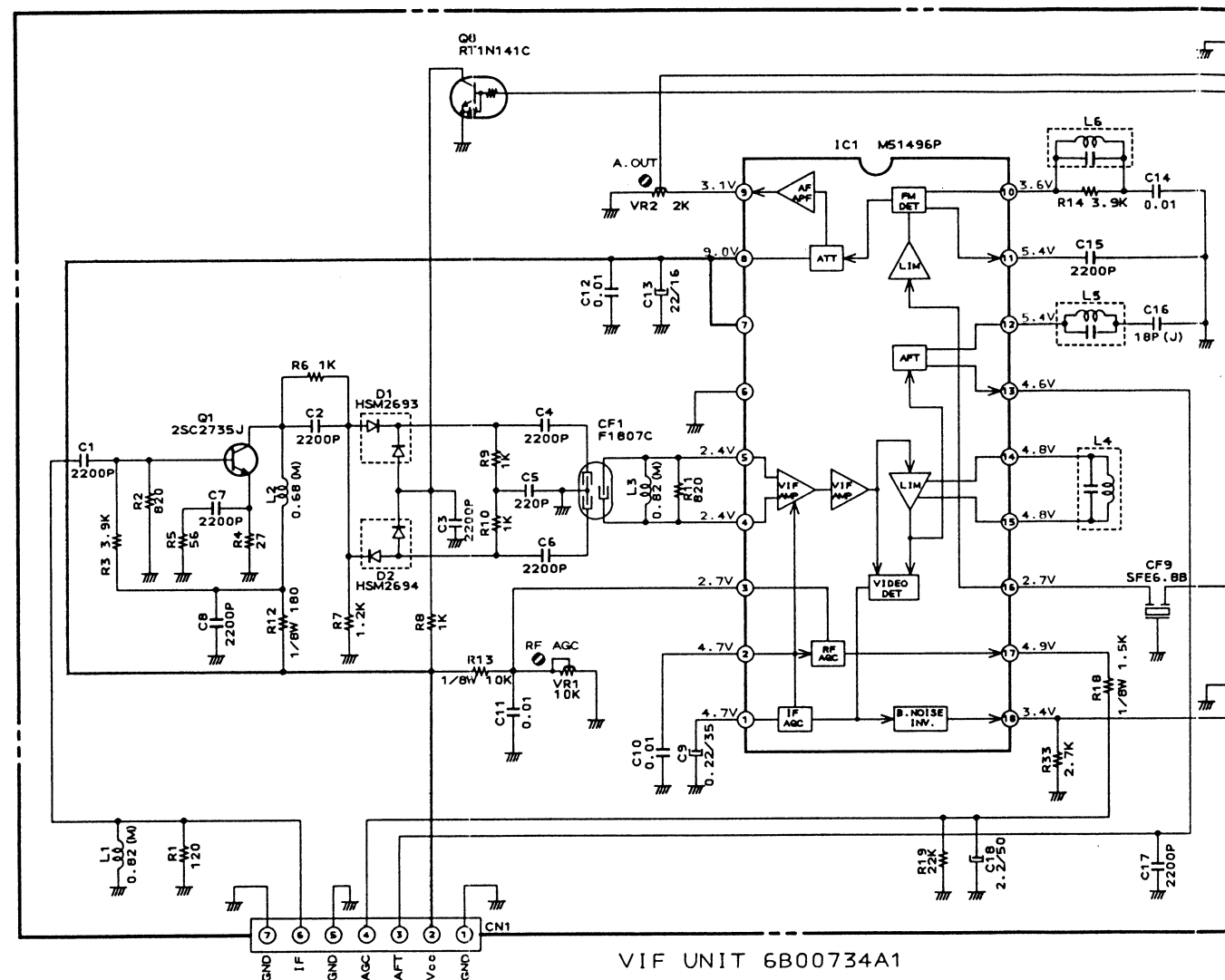
PRE AMP 400
 SCHEMATIC DIAGRAM
 NO.13-8 V111408M





PRE AMP 450 PCB VIII4C5050

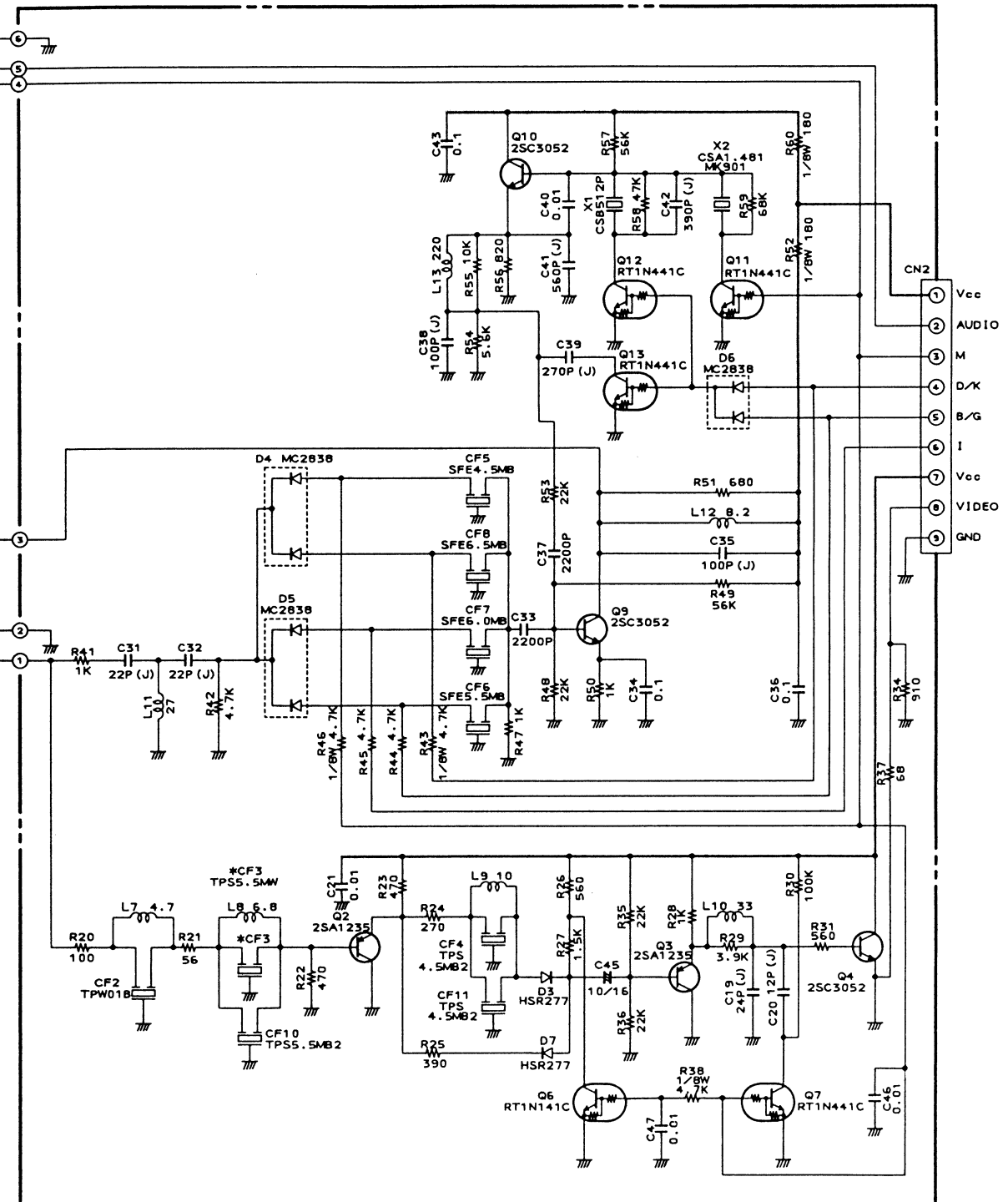




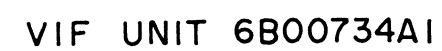
VIF UNIT 6B00734A1

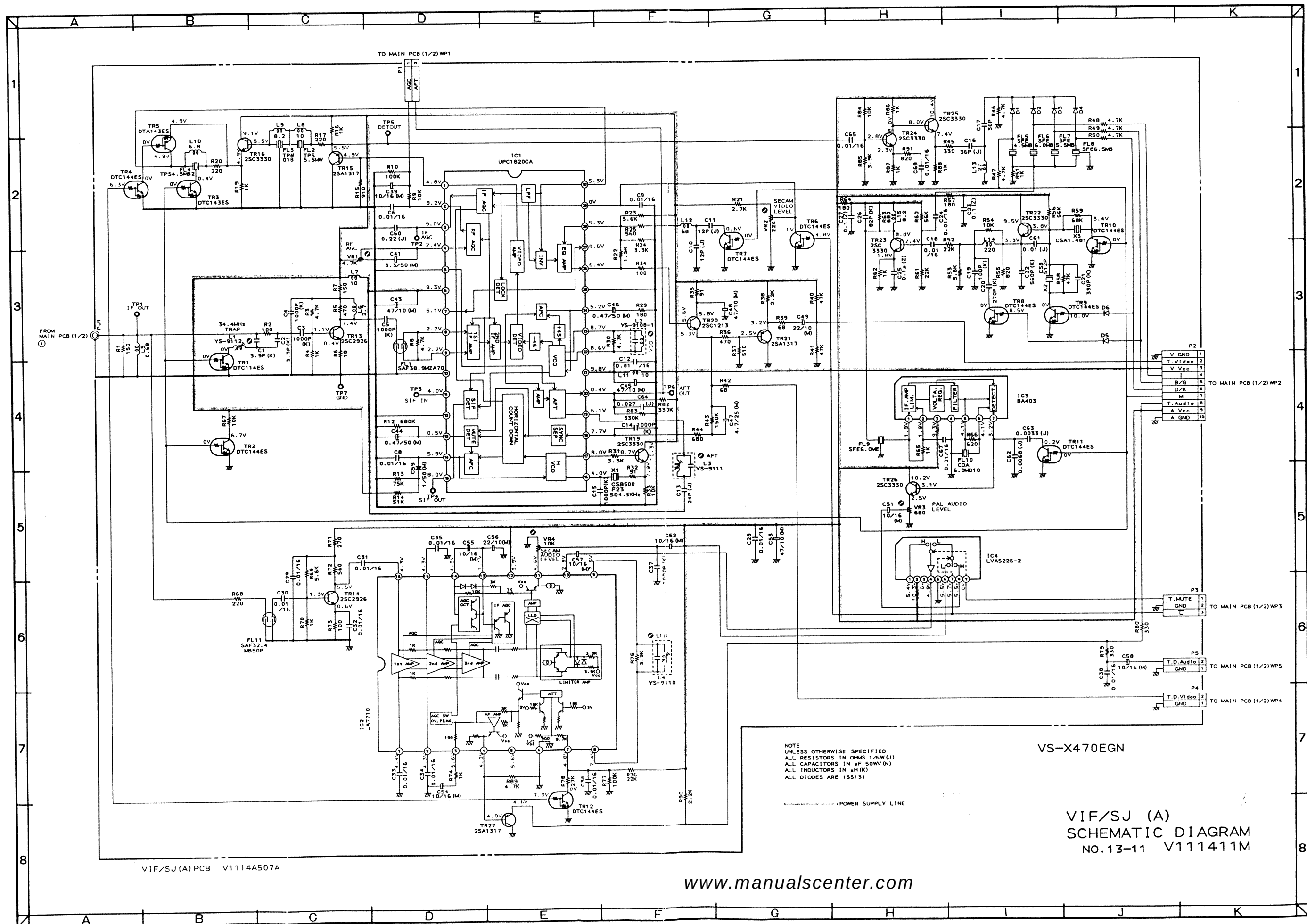
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/10W(J)
ALL CAPACITORS IN μ F (M)
ALL INDUCTORS IN μ H (K)
INDICATED VOLTAGES ARE MEASURED
IN E-E MODE.

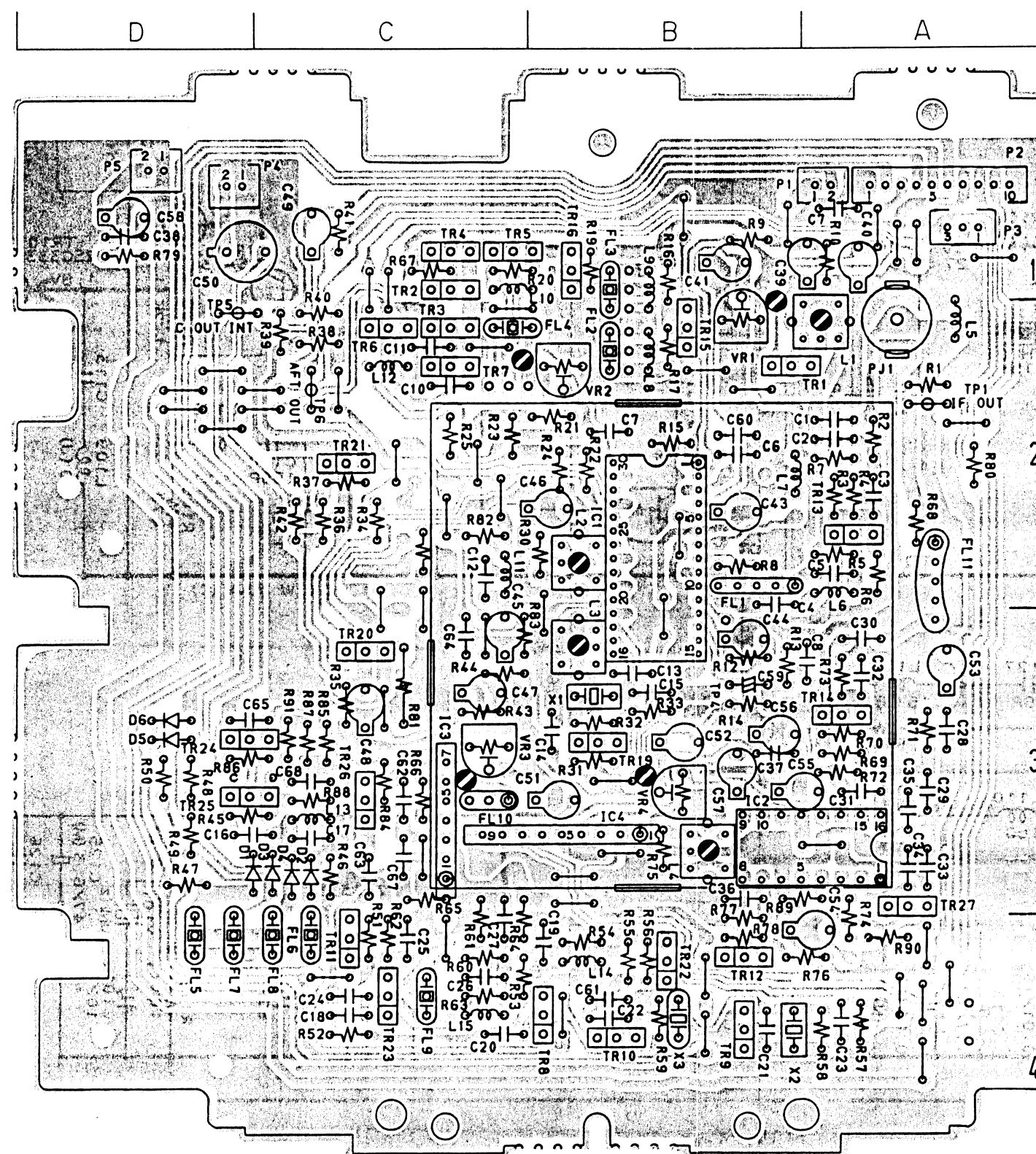
B (POWER SUPPLY) LINE



VIF UNIT
SCHEMATIC DIAGRAM
NO.13-10 V111410M







VIF / SJ (A) PCB VIII4A507A

PRINCIPAL PRATS LOCATION

ICS

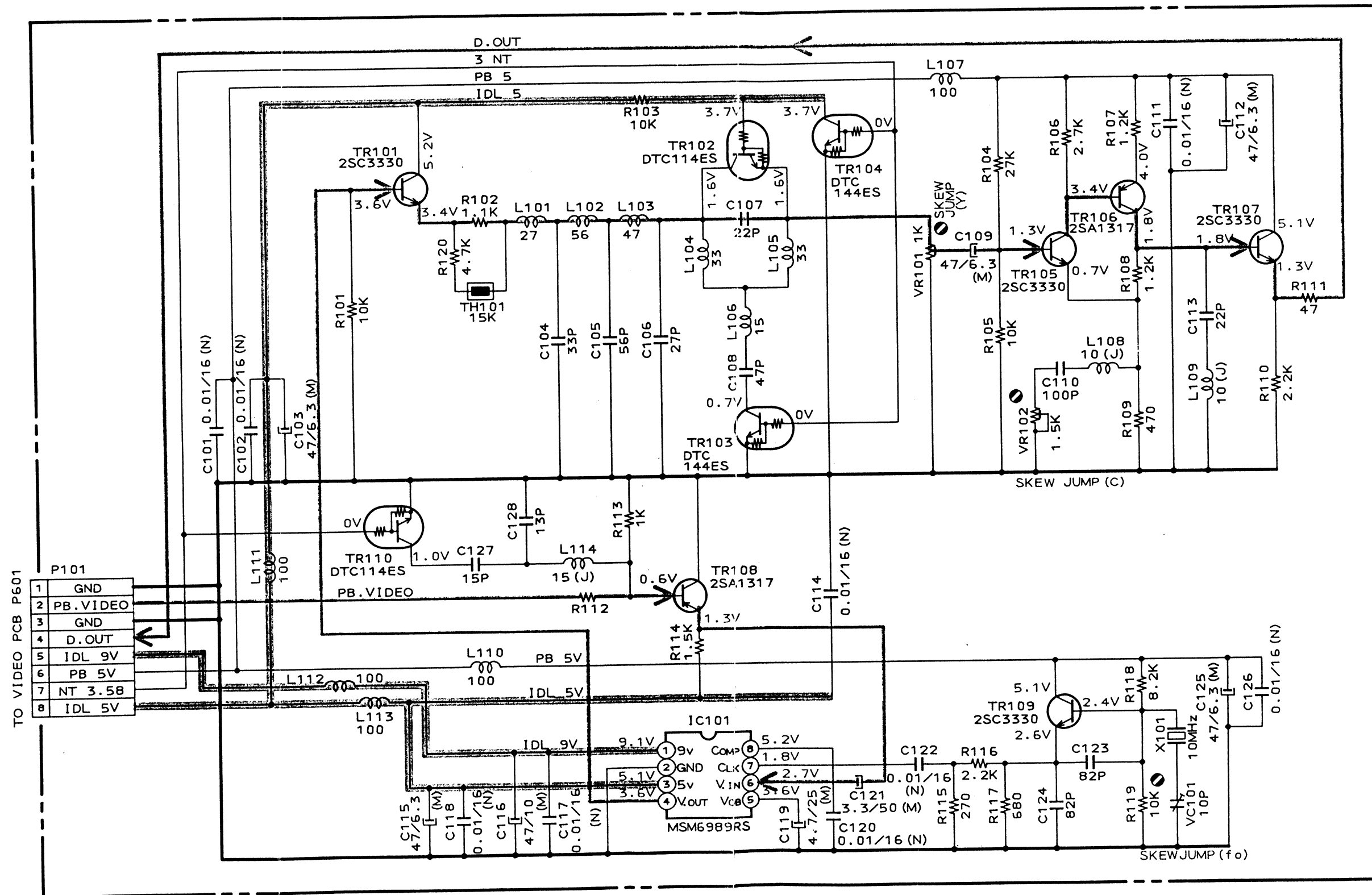
- IC1.....B2,3
- IC2.....A,B3
- IC3.....C3
- IC4.....B,C3

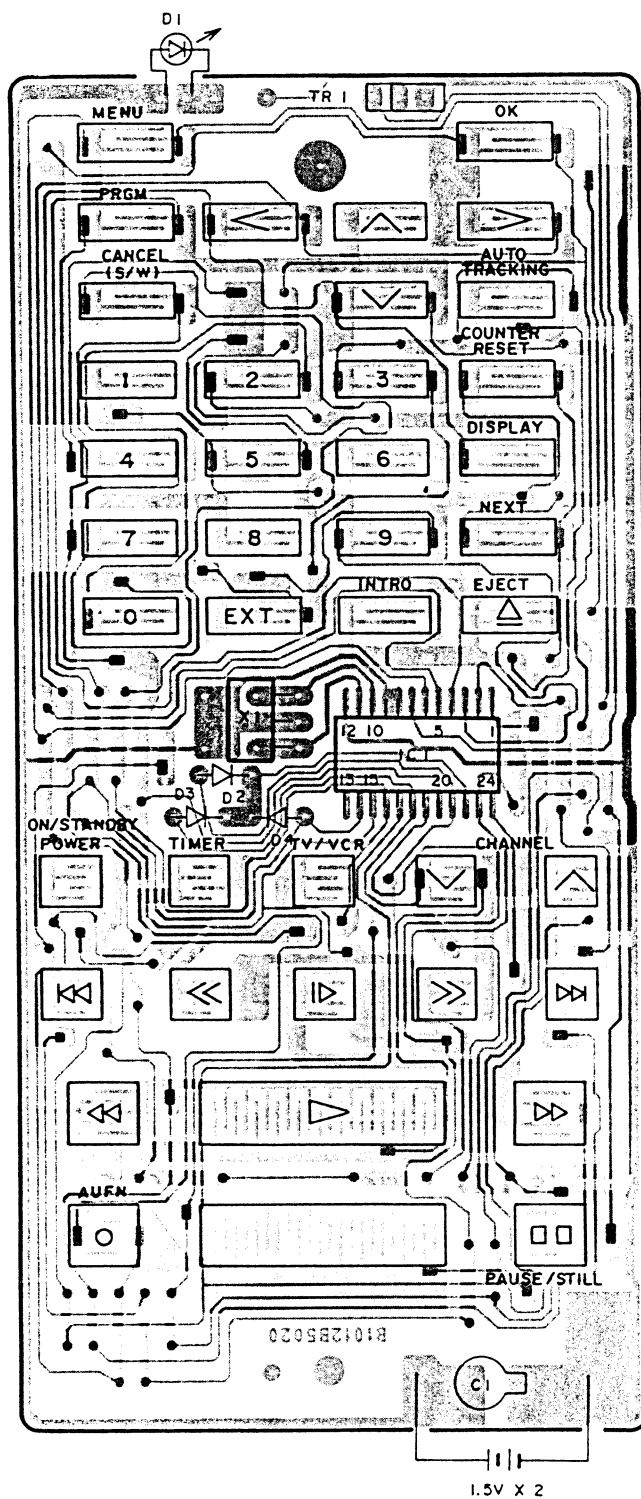
CONNECTORS

- P1.....A1
- P2.....A1
- P3.....A1
- P4.....D1
- P5.....D1

TRANSISTORS

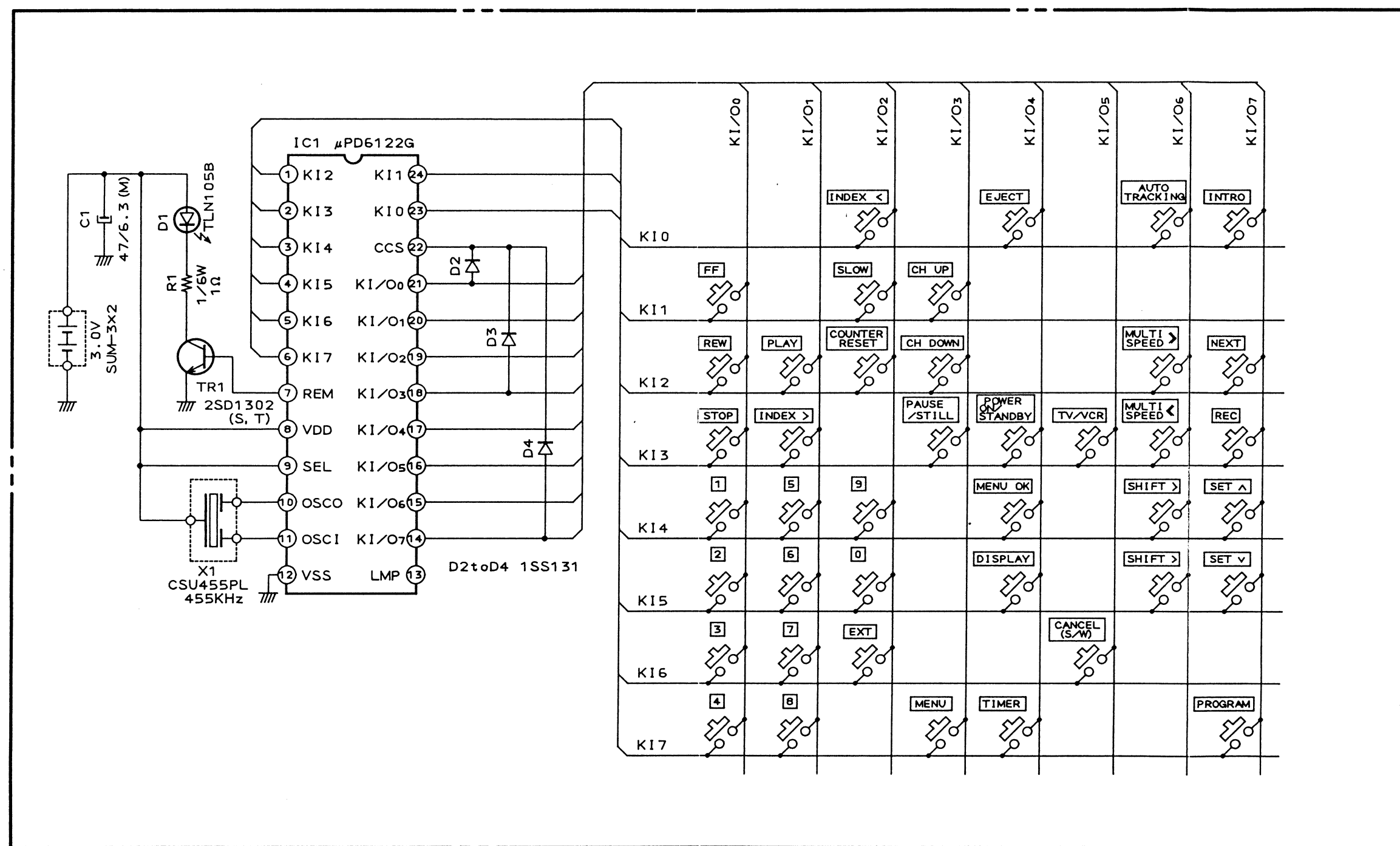
- TR1.....A,B2
- TR2.....C1
- TR3.....C2
- TR4.....C1
- TR5.....B,C1
- TR6.....C2
- TR7.....C2
- TR8.....B4
- TR9.....B4
- TR10.....B4
- TR11.....C4
- TR12.....B4
- TR13.....A2
- TR14.....A3
- TR15.....B2
- TR16.....B1
- TR19.....B3
- TR20.....C3
- TR21.....C2
- TR22.....B4
- TR23.....C4
- TR24.....C3,D3
- TR25.....C,D3
- TR26.....C3
- TR27.....A3





REMO-CON PCB BI012B5020J1

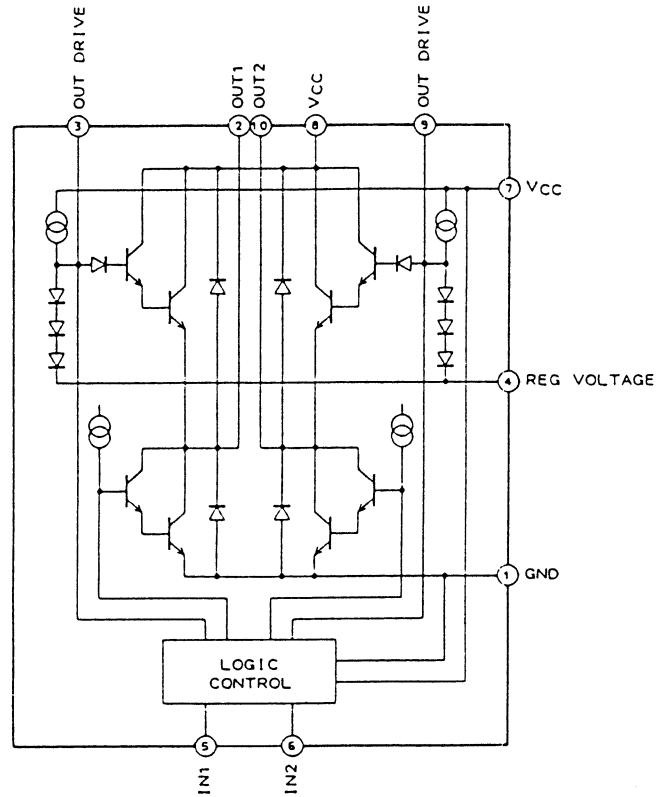
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REMOCON PCB B1012B5020

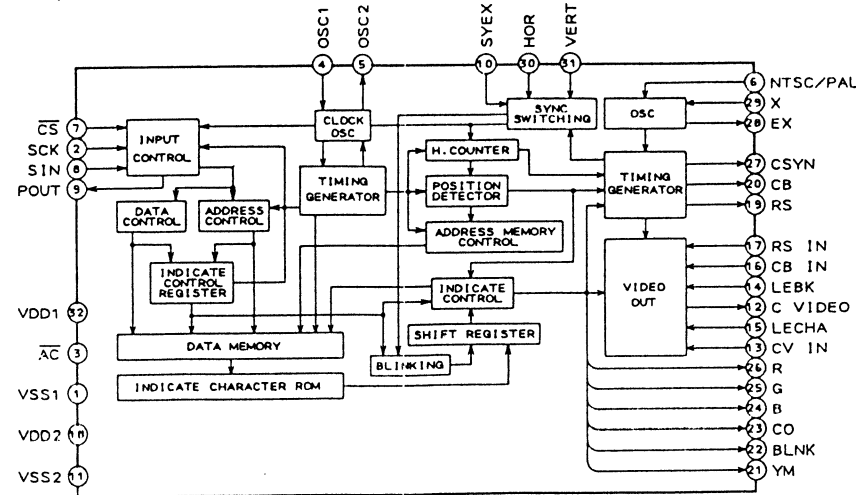
RC-V10A
REMOTE CONTROL UNIT
SCHEMATIC DIAGRAM
NO.13-13 B101204M

BA6229 (BI-DIRECTIONAL MOTOR DRIVE)

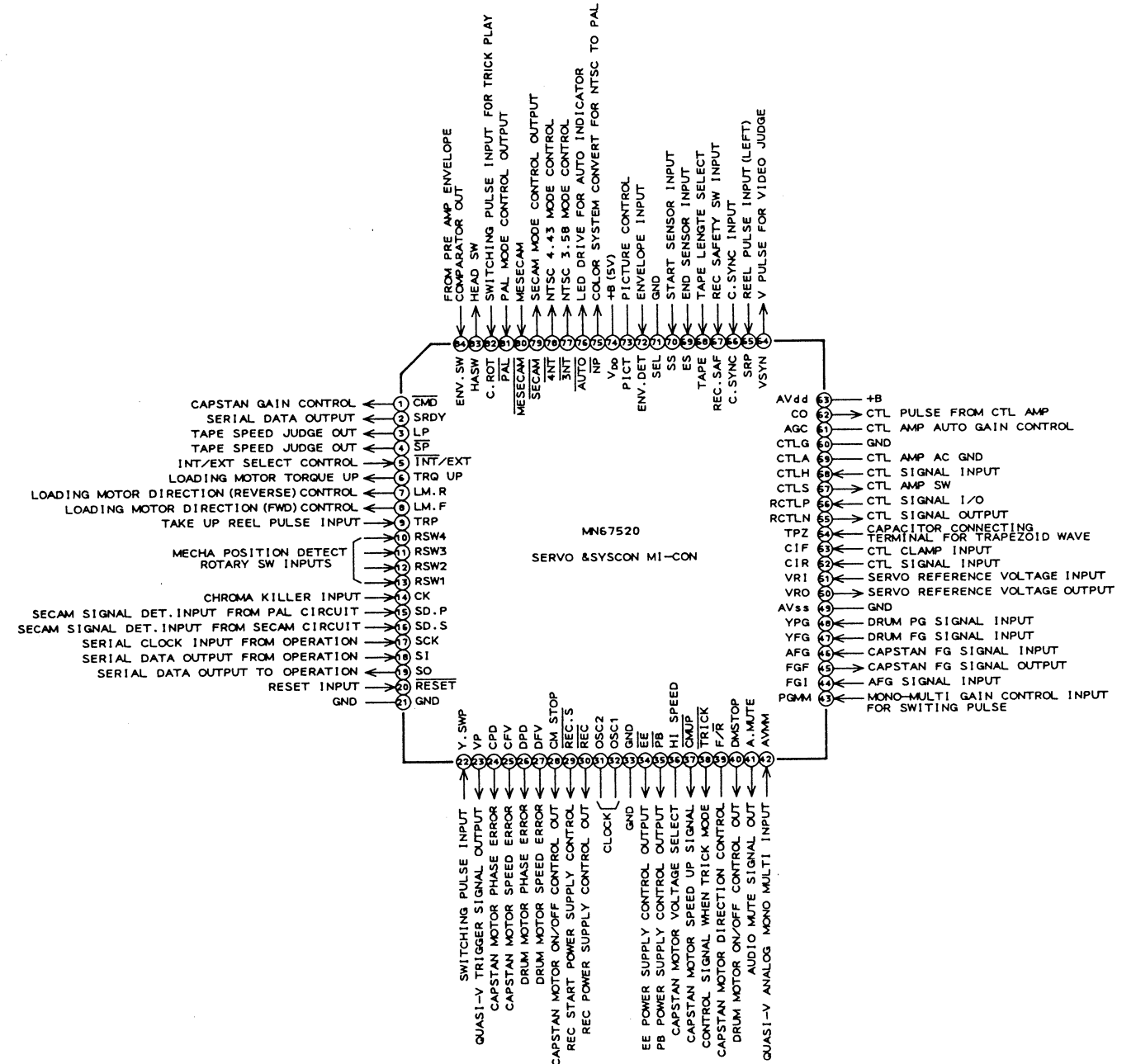


INPUT		OUTPUT		MODE
(5)	(6)	(2)	(3)	
H	H	L	L	BRAKE
L	H	L	H	CASSETTE & TAPE LOADING
H	L	H	L	CASSETTE & TAPE UNLOADING
L	L	OPEN	OPEN	STOP

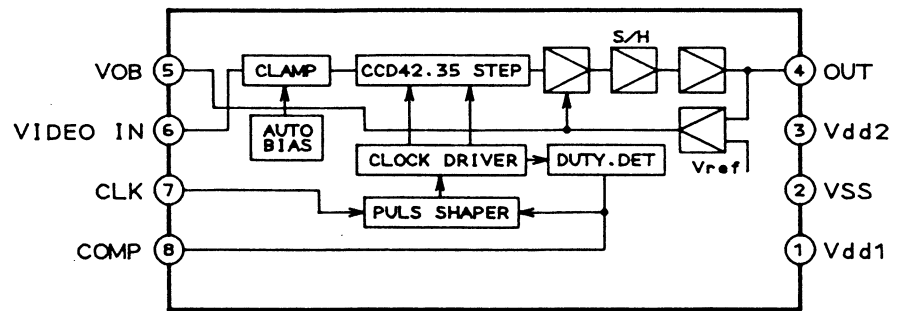
M50455-142SP (CHARACTER GENERATOR)



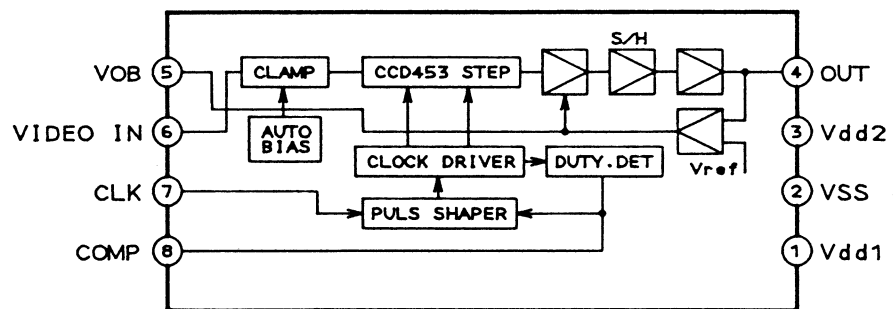
MN67520 (SERVO & SYSCON MI-COM)



MSM6989RS (1/2H CCD DELAY LINE)



MSM7400RS (1H CCD DELAY LINE FOR NTSC)



MSM7401RS (1H CCD DELAY LINE FOR PAL)

